THE MEDICAL JOURNAL OF AUSTRALIA

VOL. I.—33RD YEAR. SYDNEY, SATURDAY, JUNE 8, 1946. No. 23.

Table of Contents.

[The Whole of the Literary Matter in THE MEDICAL JOURNAL OF AUSTRALIA is Copyright.]

ORIGINAL ARTICLES— Page.
The Clinical Picture of Papataci Fever, especially in Palestine, by Aron Sandler 789
The Relationship of Food to Health, by Mildred Hutchings, M.B., B.S. 796
Some Complications and Sequelæ of the Prophylactic Inoculations, by Michael Kelly 800

REPORTS OF CASES—
Hernia through the Foramen of Winslow Emerging through the Gastro-Hepatic Omentum, by Ian Hamilton and J. E. S. Hardy 805

REVIEWS—
Non-Directive Counselling 807
X-Ray Diagnosis in Pædiatrics 807
Operative Orthopædic Surgery 808

LEADING ARTICLES—
A Report on the Remuneration of General Practitioners 809

CURRENT COMMENT—
Hypertensin 810
Sleep Paralysis 811
Araneidism 811

ABSTRACTS FROM MEDICAL LITERATURE—
Dermatology 812
Urology 813

BRITISH MEDICAL ASSOCIATION NEWS—
Scientific 814
Notice 816

MEDICAL SOCIETIES—
The Medical Defence Society of Queensland 816
The Medical Sciences Club of South Australia .. 817

NAVAL, MILITARY AND AIR FORCE— Page.
Appointments 818

AUSTRALIAN MEDICAL BOARD PROCEEDINGS—
Queensland 819
New South Wales 820

THE ROYAL AUSTRALASIAN COLLEGE OF PHYSICIANS—
Annual Meeting 820

POST-GRADUATE WORK—
Melbourne Permanent Post-Graduate Committee's Programme for July 821
Course in Gynæcology and Obstetrics at Sydney .. 821

CORRESPONDENCE—
Professor Ralph Stockman 822
Poliomyelitis: A Question of Diagnosis 822
The Future of Medical Practice 822

OBITUARY—
Eugene Pólya 823
Joseph Thom Tennant 823
Cedric Victor Bowker 823

CONGRESSES—
The Australian and New Zealand Association for the Advancement of Science 823

NOMINATIONS AND ELECTIONS 824
THE FEDERAL MEDICAL WAR RELIEF FUND 824
BOOKS RECEIVED 824
DIARY FOR THE MONTH 824
MEDICAL APPOINTMENTS: IMPORTANT NOTICE .. 824
EDITORIAL NOTICES 824

THE CLINICAL PICTURE OF PAPATACI FEVER, ESPECIALLY IN PALESTINE.

By ARON SANDLER,
Students' Medical Service of the Hebrew University, Jerusalem.

PAPATACI FEVER is caused by a virus transmitted by the bite of sandflies, or more precisely, by one or possibly more species of Phlebotomus. As the causal agent is unknown, diagnosis of the condition rests on demonstration of the presence of the insect vector in the locality at the time of the outbreak, and on detailed clinical knowledge of the disease syndrome. The symptomatology of papataci fever unfortunately is not so uniform as has been supposed by some. Although individual cases of papataci fever in a particular epidemic are sometimes remarkably similar, papataci fever, like influenza, is really highly variable in its clinical manifestations. Its symptoms can vary from one epidemic to another even within the same country. Moreover, fevers of three, four, five or even as much as nine days' durations may be encountered, whose identity with papataci fever is often extremely difficult to decide. My own experience relates to Palestine, where papataci fever is endemic and annually recurrent.

A first detailed report on papataci fever in Palestine was published in March, 1941, in this journal by A. S. Walker and L. Dods, of the Australian Expeditionary Force. It embraced 1,500 cases dealt with in hospital at Gaza in 1940. The present paper deals with 210 cases encountered among students of the Hebrew University in Jerusalem.

It will be shown that various summarizing descriptions of papataci fever and of the characteristics which differentiate it from dengue fever are highly divergent. Different authors, including Palestinian investigators, have presented descriptions different from that given by Walker and Dods and by myself. Fine differences separate my own findings from those of the Australian authors. The variability of the clinical picture of papataci fever is reflected in contradictions between different authoritative compilers of the literature which are extremely striking and may relate to most important aspects.

PART I.

The Clinical Picture.

There is almost general agreement with regard to the following symptoms of papataci fever.

The illness begins suddenly, with or often without prodromal symptoms, and with or without chills, and rarely with shivering. The temperature rises rapidly in the first day or between the first and second days to 39° to 40° C. The patient complains of severe malaise. The face is flushed. Pains, mostly severe, are felt in the head, generally in the forehead, and in the back and limbs. In certain epidemics, emphasis has been directed to pains in and behind the eyes which are enhanced by movement of the head and the eyes. Catarrh is absent in the majority of epidemics. Swelling of the glands is not found. There is no severe bleeding. The kidneys are not affected. The spleen is rarely slightly enlarged. Exanthem occurs only in few epidemics. Often the mucosa of the throat and palate is swollen and red. The temperature peak lasts one day, and the entire rise lasts mostly for three days. The temperature drop is frequently critical, but in general it apparently is lytical. The fever may last for less than three days and may persist for four, six, seven or possibly even nine days. In all cases probably (according to some authors, often) the pulse rate falls to 60, 50, or even 40 per minute from the second and rarely from the third day of fever. The decrease is most pronounced at the end of the fever. On the first day of the fever, the pulse rate may be found to be increased, the rate depending on the temperature. Even after normal temperature has been restored, the pulse rate may be 50 or less per minute,

XUM

and may remain low for several days. Leucopenia is encountered immediately after onset of the rise in temperature, and persists from one to two weeks, the leucocyte count falling sometimes to 2,000 per cubic millimetre or less. In general, neutrophile cells are reduced in number and lymphocytes increased in number. The eosinophile ratio is not constant, and eosinophile cells are found in some epidemics to be reduced to one-half their number, and in others they may be absent altogether. In some cases the number of monocytes is increased. The number of erythrocytes is normal. The blood sedimentation rate is slightly accelerated (two to three hours), but reverts to normal several days after the temperature falls. Serious complications are decidedly rare.

There is general agreement with regard to the above manifestations, and their detailed discussion in the present connexion will not be necessary. There remains, however, a large mass of observations and conclusions which are mutually contradictory.

The cases examined by me are summarized in Table I.

TABLE I.

Year.	Number of Students.	Minimum Number of Cases of Papataci Fever.
1935-1936 ..	610	76
1936-1937 ..	614	34
1937-1938 ..	655	27
1938-1939 ..	1,039	49
1939-1940 ..	1,181	10
1940-1941 ..	1,148	9
1941-1942 ..	710	5
Total ..	.. .. ..	210

During the same period numerous cases of three day fevers possibly identical with papataci fever were encountered, but being divergent in clinical manifestation from the indisputable papataci fever cases, they have been excluded from the table. Since there were also cases of papataci fever among students receiving private treatment, it may be safely assumed that in the first two years of the period dealt with in this review, 10% to 12% of the student body suffered from papataci fever, while in the last three years of this period only 0·7% of the student body suffered from papataci fever. At the same time, however, the incidence of papataci fever in certain military hospitals in Jerusalem was high. In the rooms of student patients, numerous sandflies were found in angles between the walls and ceiling. In the season of high incidence of papataci fever in military hospitals and low incidence among students, the number of sandflies in the students' quarter of Kerem Abraham in Jerusalem was not noticeably smaller than it had been in the student epidemic season. Most of the cases of papataci fever were found by me in June (Table II).

TABLE II.

Year.	May.	June.	July.	August.[1]
1936	14	38	5	6
1937	11	11	8	4

[1] Other cases later or earlier in the year.

Clinical manifestations, in regard to which there is general agreement, will not as a rule be further mentioned. In all cases the fever began suddenly, and the temperature rose rapidly. In almost all cases the fever lasted three days or slightly longer. Indisputable cases of papataci fever of longer duration (five or six days or more) were not encountered by me. I found no catarrh of the upper respiratory passages, or swellings of the glands, and never an exanthem. In six cases there were traces of albumin in the urine, but they disappeared rapidly. Two cases in which nephritis and nephrosis were present previous to the onset of papataci fever may be disregarded. A slight enlargement of the spleen, which subsided after two days, was encountered in three cases (one in 1936 and two in 1937). Stomach and intestinal disturbances were very rare. Mild, brief diarrhœa was noted in six cases, appearing in two of them only after the recession of the temperature. Since intestinal inflammation was common at this time, the symptom of diarrhœa in these six cases can only doubtfully be associated with the papataci condition. In almost all cases headache was experienced, frequently extreme, generally in the forehead and enhanced by movement; sometimes slight dizziness was present. The pain in the back and the limbs is generally severe—stretching, tensing, or tearing in type. The pronounced contraction at the level of the tenth vertebra found by Walker and Dods was never observed by me. Extreme weakness extending to indifference and occasionally mental lethargy and severe psychic depression or even despair, and contrastingly, excitement and writhing, marked the height of the fever and sometimes its onset. The numbness, partial or complete loss of consciousness and cramps observed by other investigators were not encountered.

In general the symptoms corresponded closely to the syndrome described by Walker and Dods. Divergences from their findings and from those of other authors related to the localization of certain types of pain of diagnostic importance. It will be interesting to consider these in greater detail.

Pain in the Eyes.

The occurrence of pain in the eyes was given attention after Kleeberg (Jerusalem, 1936) put forward the view that this symptom is particularly characteristic and valuable as means of distinguishing papataci fever from dengue. Sticker and others have emphasized this symptom, though not to the same degree as Kleeberg. My own patients disclaimed experience of pains in the eyes in the great majority of cases; a minority found the eye pains to be no greater than those in the head generally. It is of interest to note that my observations were made at the same time and in the same city as those of Kleeberg, but in a different residential quarter. It must be concluded that eye pain is of doubtful value as a characteristic of papataci fever.

Pain in the Thighs.

In the first two epidemics (1935 to 1937) almost all my patients (at least 110) obviously suffered from pain in the thighs. In pronounced form and generalized occurrence this symptom has not been noted previously either in Palestine or elsewhere, and has never been mentioned except in terms of a general reference to pain in the "back and limbs". In a large number of my cases medical assistance was first requested only because of "terrible pain in the thighs". Whether the thigh pain centred mainly in the muscles, in the nerves or in both, could not be ascertained. In a number of cases the pain was largely restricted to the thighs. It was not definite in the region of the joints. After two days, almost always simultaneously with the temperature drop, the sharp pains suddenly subsided. In 1942, five years later, two patients with the same symptom were again encountered; one case of particular interest is set forth below.

On May 30, 1942, S.R. fell ill suddenly. His temperature on the same evening was 39·8° C., and fell without treatment by the next morning to 37° C. Apart from a furred tongue, no special symptoms were present. No enlargement of the spleen was noted, and no pain in the eyes or limbs. After two or three days, the illness suddenly returned, this time with ischias-like pain in the right thigh and milder pain in the left thigh from the *os sacrum* to and beyond the popies. The pain was so severe that the patient applied in the night to the nearest doctor and received an injection. On the following day, only residual pains were felt in the right thigh; on May 5 the pain had disappeared completely. On May 6 the temperature rose again to 39° C., the tongue became furry, the pulse rate was 80 to 90 per minute and ischias pains returned. Three days later the temperature fell by crisis, and immediately the pain disappeared. Recovery was rapid. Four days later, on May 12, pain was suddenly felt in the region of the two Achilles tendons, and the

temperature rose to 39·8° C. The second spell of fever lasted for two or three days, and again was not accompanied by other special symptoms. After the temperature had subsided, the pain in the tendons disappeared and the patient recovered.

It is plausible that this case represented papataci fever with a recurrence after four days. Pain in the thighs, similar to that observed in 200 cases of papataci fever several years previously, marked the first attack, and severe pain in the Achilles tendons marked the second attack. On both occasions the pain set in before the temperature rise, which lasted for three days, and disappeared on the return of the temperature to normal.

Other Symptoms.

Other symptoms reported in the literature—namely, nose bleeding, blood flecks in the skin, blood in the fæces, vomiting, loss of consciousness and cramps—were never encountered. Inflammation of the conjunctiva was in no case pronounced.

Recurrences.

Recurrences were encountered only in seven cases; in five after three days and once after nine days. In the seventh case, recurrence took place after five weeks and was probably due to a second infection. In two cases, papataci fever was contracted in successive years. On one occasion two room mates fell ill on the same day and both suffered recurrence three days after the temperature had subsided. (Was this coincidence?) In the recurrences, pain in the thighs similar to that obtaining in the first attack was encountered in every case as far as I remember.

Recovery.

Recovery was smooth and rapid. The patients left their beds a day after the return of the temperature to normal, and almost all had returned to their studies a few days later. Heart neuroses, excessive weakness, depression or digestive disturbances were not seen.

Other Short-Term Fevers.

Concurrently with the above-mentioned cases of a generally uniform symptom picture, other short-term fevers, some of them three-day fevers, were observed in the same residential quarter. They presented characteristics different from those described above. In particular the symptom of pain in the thighs was in these cases lacking. The classification of such fevers with true papataci fever is doubtful. In June and July, 1942, nine cases were encountered in which fever lasted for two or three days, and the temperature rose suddenly (in four cases in a matter of hours), reaching about 40° C. The pulse rate might be 60, 80 or 90 per minute, and in only one case was the rate augmented to an extent conforming with the rise in temperature. In two cases, spleen enlargement of brief duration, and in one case spleen enlargement of five days' duration, was observed. All other findings were normal. Pains in the eyes and limbs were not reported; there was no catarrh or exanthema; headache was mild. One fever case lasted only a day or a day and a half, with high temperature, slow pulse and palpable spleen apex; but on the following day all the findings were again normal. A number of these cases were possibly of papataci fever and should be added to the total of 210 cases definitely so identified.

PART II.

Let us now compare our clinical picture with that given in Palestine, in particular by Walker and Dods, and elsewhere by other investigators, and note in what measure the different descriptions can be reduced to a common basis.

The fact of the transmission of papataci fever by a female Phlebotomus does not appear to be controversial. The species of Phlebotomus which is the sole or main vector has not been definitely established, but a majority of authors ascribe this role to *Phlebotomus papataci* (*papatasii*), the species used by Doerr for his experiments. (Phlebotomus, a Greek word, means vein-cutter; papataci, an Italian word, means secret biter; the sandfly, unlike many biting insects, is inaudible.) According to Doerr, effective transmission to the insect vector occurs only in the first and second days of fever, particularly on the first day, but only doubtfully on the third day. The sandfly can infect man only after six or seven days. The shortest incubation period in man is half a day, and according to some authors, three and a half days. The maximum incubation period is eight days. The usual incubation period is four to seven days.

The biology of Phlebotomus, an important vector of a number of diseases, and the experimental transmission of papataci fever from infected to normal blood, have been investigated by several workers, including some Palestinian workers (Kligler and Aschner, Adler and Theodor). Since the present paper deals only with the clinical side of papataci fever, the work of these authors need not here concern us further. It is also unnecessary for us to consider in detail experimental work which has been concerned with the properties and nature of the unknown filterable, but not certainly invisible, causal agent. Phlebotomus tends to congregate near moist sand (hence, sandfly), building wastes, stagnant water, and shaded places protected from wind, particularly in areas free of draughts, in cellars, wall fissures, tents and room corners, especially according to my observation along the angle between the ceiling and the walls. The sandflies leave their hiding places generally towards evening or at night. The occurrence of the fever is related to the presence of the specific insect vector and is subject to a corresponding seasonal rhythm. In subtropical countries, the fever is found mainly in summer and early autumn during a season of five or six months. At its close, the insect vector disappears—for example, in Palestine in November after the early rains.

Sandflies reappear in Palestine in mid-April in the Jordan Valley and in mid-May in Jerusalem, when the temperature exceeds 20° C. Among the coastal cities of Palestine Haifa in particular is infested. There is a belief that the density of the sandfly population of Palestine is on the increase, perhaps as a result of increased building activity. The cases described by Walker and Dods and by me occurred in the period from May to November, the peak being found by Walker and Dods in August, and by myself in June. Shapiro (1926) found in Haifa in three consecutive years two distinct incidence peaks every year, one in June and another in August, with a distinct decline in July. This result is in complete agreement with the general finding of Marett, who states that Phlebotomus produces each year two generations, the first of them being short-lived. In my experience papataci fever declined in July and did not show a subsequent rise.

The occurrence of papataci fever in epidemic form on Mount Carmel near Haifa, and in Jerusalem (800 metres) clearly disproves the view of Doerr, Marett and Birt, who consider papataci fever rare at 400 metres and absent above 600 metres. Cardamatis (1929) found Phlebotomus in Greece at a height of 1,650 metres. Reports from the Himalayas show that Phlebotomus is found even at 2,000 metres.

Several observers, in Haifa as well as elsewhere, have reported that cases of papataci fever occurring at the end of summer are of greater severity than those occurring in spring, possibly as the result of an increase in the virulence of the causal agent brought about by numerous successive transfers through insect and human vectors. I have not confirmed this finding.

In the distribution of papataci fever the poor flying ability of the sandfly is important. Because of it, the infection radius of the disease can be small. Seven or eight years ago in Jerusalem, while the construction of Princess Mary Road was in progress, and large amounts of building waste lay scattered in the street, sandflies were found in most houses on one side of Princess Mary Road, but not in houses on its other side. Analogous strict localizations have been reported in the literature. Papataci fever among students in Jerusalem was largely centred in Kerem Abraham quarter; papataci fever, among army

XUM

personnel in Jerusalem, on the other hand, was most common at a time when Kerem Abraham was virtually untouched by papataci fever. The military importance of papataci fever, although it is not a dangerous fever, is considerable in loss of manpower. Military medical personnel have rightly pointed out that breeding centres are created by army building and dismantling activities in light sandy soil areas.

We may undertake at this point to draw a comparison between observations on papataci fever in Palestine and those made in other countries. For earlier references we shall depend largely on the summary of W. D. Megaw and on the more detailed presentation of G. Sticker. For recent work, the summary of Manson-Bahr and original papers have been consulted.

Duration of the Fever.

In illustration of the duration of papataci fever, Megaw presents graphs showing the course of one, two, three, four and five day fevers. The curves show (i) a one day peak followed by a decline without subsequent recurrence of fever, or (ii) a one day peak with a fall of fever on the following day and a later peak even higher than the first one, or (iii) a one day peak followed by a three day trough and a subsequent recurrence. Megaw states that it is impossible to distinguish these curves from those of dengue fever. Sticker, too, considers that papataci fever may last generally three to four, five or six days, and therefore holds that this symptom gives no clear demarcation between papataci fever and dengue. (Seven-day fevers are occasionally observed with an intervening period of normal temperature, and it is then difficult to ascertain whether the case in question is one of remission or recurrence.) Doerr gives the maximum duration of fever as five to seven days. Kleeberg, in 1936, stated that the fever lasted one, two, two and a half or even four or five days. He appears later to have changed his mind, and in 1942 he stated that papataci fever lasted for two or three days, the diagnosis of fevers of longer duration being held to be uncertain. In my opinion this view is not supported by the literature. According to Manson-Bahr, the duration of fever is variable within a period of two to eight days. It seems necessary also to admit as genuine certain abortive cases, in which the temperature of the patient rises only slightly or not at all and other symptoms too are largely missing. Such cases are encountered mostly at the beginning of an epidemic season. All the patients examined by me presented three-day fevers. As has been pointed out earlier, fevers of longer duration were not admitted in the list of cases if the symptoms manifested failed to conform to the typical picture, and in particular if pain in the thighs was absent. In Haifa, too, papataci fever generally lasted for three or four days. In 10% of these cases it lasted for five days, but in no case longer than five days. Since some cases of papataci fever are longer in duration than three days, and since some cases of dengue are unusually brief, it is clear that differentiation of the two types of illness on the basis of the duration of fever is difficult or impossible, particularly if there are atypical symptoms. This point will be dealt with more fully in a later paper.

Shivering.

The disease begins as a rule, though not in every case, with a sensation of cold. According to findings both in Palestine and in other countries, shivering attacks are rare. The statement by Zlocisti that papataci fever in Palestine generally begins with a shivering attack cannot be accepted; this author observed a case of shivering in Istambul lasting one or two hours. In Palestine Walker and Dods noted a few cases of shivering; but I found not a single case of shivering in a total of 210 cases of papataci fever.

Pain Symptoms.

The pain symptoms are of diagnostic value. Megaw reports the occurrence of pain, as in dengue, in the back and limbs only, varying in intensity through a series of progressively milder forms from "maddening" pain to no pain at all, according to the epidemic. Pains are experienced in the hips, in the epigastrium, above the eyes and near the joints. Inflammation of the joints is rare. Sticker presents a similar summary, adding that eye pains affect the eyeballs during movement, and that the eyes are sensitive to the slightest pressure. Other authors place great emphasis on this symptom. Doerr lists the pain in the following order: eye, muscles, hips, lower limbs. Zlocisti at Istambul found severe pains in the forehead and above the eyes. Kleeberg in Palestine found pains in the head and back or throughout the body, and considered the eye pain as especially characteristic and valuable as a means of differentiating papataci fever from dengue. In almost all cases dealt with by Walker and Dods, the eyes were sensitive and pain was caused by the smallest movement, so that a fixed gaze was characteristic of the condition. I myself, on the other hand, have never encountered this symptom, and Shapiro at Haifa similarly does not agree that the eyeballs are especially sensitive to pressure, since he found this symptom only in four or five cases and in mild form. In view of the emphasis placed on eye pain by Kleeberg, it is interesting to note that Lee T. Rice, in an epidemic of dengue at Galveston in 1922 involving about 4,000 cases, of which 565 are reported, found soreness of the eyeballs to be usual and gives this symptom precedence over the known symptom of pain of skeletal muscle. Purcell (1937) expressed an opinion, on the basis of experience in the Gold Coast, that pains behind the eyes suggest dengue. Manson-Bahr lists pain behind the eyes aggravated by pressure and slight movement of the head among the symptoms of papataci fever, but also places head and eye pain first in his list of symptoms of dengue. Walker (report on dengue, 1942) likewise has noted pain and sensitivity of the eyes in dengue as in papataci fever. Recently (1944) Kizner and Lisansky encountered, on an island in the Pacific, 318 mild cases of dengue, and reported as a particularly disturbing symptom pain in the forehead and back and aching in the eyes. It is questionable whether eye pain, even if it does not differentiate papataci fever from dengue, is an important symptom of the former. In Palestine, pain in the eyes has been observed by Walker and Dods at Gaza, and by Kleeberg at Jerusalem, but not by myself at Jerusalem, and only rarely by Shapiro at Haifa. Sticker mentions eye pains as a symptom of papataci fever. Megaw, however, noted only pains above the eyes, and placed them last in his list. This is also the description given by Zlocisti at Istambul. In view of these contradictory findings and of the reports on eye pain in cases of dengue, it becomes clear that even in the same country a symptom of papataci fever which is outstanding in one outbreak may be absent in another. It is necessary, therefore, to avoid generalizations in summing up the literature, and especially to be wary of lists of "cardinal" features. The same caution must be exercised in evaluating the significance of the symptom of severe pain in the thighs. This was found in 210 cases of papataci fever examined by myself, but is not mentioned in previous reports on papataci fever in Palestine (Haifa, Gaza, Jerusalem) and elsewhere, except with general reference to body pains or pains in the limbs. Megaw lists the exact locations of the pain symptoms, but does not mention the thighs among them. On the other hand, Tomb (1929) in Bengal emphasized the importance of thigh pains in his description of body pains characterizing dengue. It is noteworthy that, whereas thigh pains in the cases reported by myself came to be regarded as a principal basis of diagnosis, other outbreaks of papataci fever are notable for entire absence of any pains. I can corroborate the report of Megaw that the pain symptoms vary in intensity in accordance with the temperature, appearing at the onset of fever, subsiding with its decline, and reappearing again when the temperature rises. In this connexion the case report given above in full, in which ischias-like pain of the Achilles tendons is recorded, is noteworthy. In the literature, moreover, one also finds described epidemics in which pain mostly outlasted the rise in temperature, sometimes by weeks and even months.

Digestive Disorders.

Among digestive disorders in papataci fever, constipation has been stated to be frequent in reports from Palestine and other countries; it was not found by me. Diarrhœa clearly is infrequent in certain epidemics, absent in some, yet frequent in others. It may be asked whether it is not proper to include this symptom, together with head and back pain, among the principal symptoms of papataci fever. In his survey of the literature Sticker concludes that papataci fever sets in with severe stomach disorders and high fever. Since in my own cases there was no symptom of severe stomach disorder, Sticker's generalization is evidently ill-founded. Sticker lists the following as cardinal symptoms: rise in temperature, headache, pain in the limbs, disorders of the stomach, disorders of the intestines. He assumes the existence of distinct gastric, rheumatoid, catarrhal and exanthematous forms of papataci fever. When the digestive disorders do not pass quickly, he considers it probable that the malaise and diarrhœa will last for many days or weeks. Among the older names for papataci fever there is that of *gastroenteritis climatica* selected by A. Pick, who first described the disease clinically in 1886. The pronounced importance assumed by the symptom of digestive disturbance in certain epidemics is well illustrated by this name. Megaw lists digestive disturbance among the symptoms of papataci fever, but does not give it emphasis as does Sticker. Muehlens, on the basis of experience including Palestine and of a review of case reports in the literature, states that papataci fever in 20% to 30% of cases is associated with diarrhœa, sometimes with blood and mucous slime in the stool, and with symptoms of stomach catarrh with nausea and vomiting. He also cites the old name given to the infection by Pick in support of his statement. In the cases reviewed by Birt, in 20% diarrhœa was present and in 25% severe vomiting. Taussig, in 30% of his cases, found diarrhœa, sometimes severe and associated with blood in the stools, generally from the second day of fever and persisting even after the return of the temperature to normal. Similar symptoms were presented in a majority of the cases examined by Zlocisti at Istambul in 1917. These statements are opposed by Megaw and by most Palestinian investigators. Walker and Dods noted lack of appetite, occasional nausea and vomiting; however, only a small number of patients were admitted to hospital for mild diarrhœa and subsequently diagnosed as suffering from papataci fever.

It is understood that little importance was attached at Gaza to diarrhœa as symptomatic of papataci fever. Kleeberg found digestive disturbances infrequent. I observed mild digestive disorder in only six cases out of 210. A colleague in an English military hospital at Jerusalem has stated that he has not known diarrhœa as a symptom of papataci fever. Nevertheless, the view is not tenable that Palestinian papataci fever is distinct by absence of digestive involvement, as Shapiro at Haifa reports findings almost identical with those of Muehlens, and like the latter recalls the old name given to the disease by Pick. Shapiro has suggested that special attention should be paid to the symptom of digestive disturbance. According to his report, the disturbance of digestion begins simultaneously with and outlasts the fever. He found in 50% of his cases severe constipation in the first days of fever, passing in 15% of cases to mild diarrhœa after the third day of fever. In 25% of his cases he found diarrhœa which began with the fever. In six cases he found blood in the stool. Frequently severe stomach inflammation succeeded the infection. On the whole it seems proper to conclude that intestinal catarrh is not a regular cardinal symptom of papataci fever.

Manson-Bahr summarizes the literature by the statement that intestinal catarrh is a feature of papataci fever in certain years, just as inflamed throat is in others.

Exanthem.

Exanthem is of possible importance in distinguishing papataci fever from dengue and similar infections. There has been considerable controversy on this point. (The question at issue is not, of course, the rash evoked by numerous insect bites, but an alleged specific rash.) None of the papataci fever patients seen by me presented an exanthem. Kleeberg has not found an exanthem in papataci fever, and generalizing he states that this symptom never occurs. Walker and Dods observed an exanthem in Palestine very rarely; they state that the skin in papataci fever was particularly pale, in contrast to the flushed appearance of the face, and despite the high temperature. Occasionally they noted a slight local reddening, especially in the region of the abdomen, and unlike the exanthem of measles. In three cases they found papules, but in no case herpes. Shapiro, in Haifa, found herpes of the lip in three cases. Megaw, summarizing the literature in careful terms, concludes that an exanthem is rare, but does occur. Sticker, on the other hand, believes that in certain epidemics of papataci fever there is a pronounced exanthem. It is not proposed here to list the types of exanthem which have been reported. The most common is described as a rash, similar to the rash of scarlatina and sometimes involving only the neck and back. Peschle, in a papataci fever epidemic at Istria in 1933, found in a small percentage of his cases a rash similar to that of scarlatina in the region of the joints. In his adult patients, herpes was fairly frequent.

Enanthem.

A significant observation has been contributed by Walker and Dods, who found an enanthem in almost all cases of papataci fever encountered by them. On the mucosa of the tongue and palate (in the triangle of the transition from the soft palate to the hard palate and the uvula) vesiculæ were observed in early stages of the infection. The vesiculæ were small, bright, smooth, and without an inflamed base in the mucosa; they were never found in the mucosa of the cheek. It is pointed out that this group of symptoms (vesiculæ on the palate, sensitivity of the eyes to pressure and movement, occasional conjunctivitis, absence of herpes) is also frequent in other virus diseases. In view of the difficulties which are encountered in the diagnosis of papataci fever, and of the variable and contradictory symptom picture of this infection, the enanthem of the palate discovered by Walker and Dods commands great interest, particularly as it is said to appear in the early stage of the disease, and as it was found at Gaza in almost every one of 1,500 cases of papataci fever examined. As the report of the Australian authors appeared subsequently to the time of the epidemics dealt with by me, I failed to look for this symptom. Sticker devoted 55 pages to his summary of papataci fever and another 55 pages to dengue, but cited only one reference in which a similar enanthem may have been implied:

> Hoffman has described an infection which was common in Rabaul, New Guinea, in 1902 and which he considered to be dengue or measles. Wick saw the same infection in 1913 and called it Morbilloid. He noted papulæ which turned blood flecks on the palate and near it. Koplik spots were not observed. In a later stage of the infection, a knotty flecklike exanthema of the face, body and limbs developed.

Neither Sticker nor Shilling noted vesiculæ of the palate, though the palate was frequently red and swollen. But Castellani (1939), who has drawn attention to little-known symptoms which are of value in the diagnosis of certain tropical diseases, states that the face in papataci fever may sometimes present a persistent flush which in 20% to 30% of cases lasts for seven days or even fifteen days after the recession of the temperature. He also sometimes observed a redness in the form of points on the soft palate lasting for the same time, but did not consider it a characteristic symptom, since it was also found by him occasionally in dengue, typhus and relapsing fever. It is clear that Walker and Dods's observation deserves careful investigation, particularly since vesiculæ such as they have described have not so far been reported in dengue. It is curious that Manson-Bahr, in several editions of his textbooks, mentions among usual symptoms of papataci fever the presence of reddening and small vesiculæ in the throat and palate in many cases, although the literature at his disposal cannot have justified this description.

XUM

Enlargement of the Spleen.

It is questionable whether enlargement of the spleen is of differential diagnostic value, particularly in the early stages of an epidemic. Walker and Dods found in a small percentage of his cases that the spleen was palpable; the enlargement subsided after a few days. Among my 210 cases, only three patients showed this symptom, and it passed away after about two days. Kleeberg considers that it almost never occurs. Shapiro found it in a fairly small number of cases, but Erkolini found it frequently. Megaw does not even mention the spleen. Doerr denies the existence of this symptom. Sticker holds that it is generally a result of earlier malaria, paratyphoid fever, leishmaniasis or some other infection. This is an exaggerated statement.

Swelling of Glands.

It is generally admitted that papataci fever does not involve swelling of the glands. I have never found this symptom. Walker and Dods correctly ascribed symptoms of swollen glands, when they occurred, to extraneous causes. As a negative finding this symptom is of importance, since enlargement of the glands is in dengue a frequent and sometimes a conspicuous symptom.

Upper Respiratory Tract Symptoms.

There is a consensus of opinion that catarrh of the upper respiratory passages is absent in most cases of papataci fever. Kleeberg considers that alleged cases of papataci fever in which catarrh is present are really cases of influenza. Sticker, on the other hand, believes that certain epidemics of papataci fever are catarrhal as others are rheumatoid *et cetera*. There are frequent reports in the literature of coryza, cough and *bronchitis descendens* in certain epidemics. The truth of these statements is now difficult to establish. At the beginning of an epidemic, Walker and Dods found in 1,500 cases of papataci fever not a single case of catarrh, except where the latter condition was contracted previously to the rise in temperature. Later in the same epidemic they found a series of cases in which catarrh was present, but concluded that in these cases catarrh was not associated with papataci fever. They believe that papataci fever is characterized rather by absence of catarrh.

Inflammation of the Conjunctiva.

Inflammation of the conjunctiva has been reported universally, and first by Pick. It is generally stated to assume the form of stripes between the lids. In my experience the symptom has been rare. Megaw lists symptoms of papataci fever in the following order: flushed face, inflammation of the conjunctiva, pains. Zlocisti found inflammation of the conjunctiva, mostly of the striped form, in all cases of papataci fever at Istambul. Shapiro found inflamed conjunctiva in 92% of the papataci fever cases encountered by him at Haifa; his patients, however, failed to complain of any disturbance from this cause. Pearson (1940) listed inflamed conjunctiva and fear of light among the principal signs of papataci fever. War Office Memoranda on Medical Diseases (1942), in a concise statement on papataci fever, describe a bloodhound-like appearance of the eyes unaccompanied by lachrymation or catarrh as in influenza. I have not seen these symptoms in Jerusalem.

Hæmorrhage.

Nose bleeding has been frequent in certain epidemics, as in Istria (Peschle, 1933), but not in others. I have not found this symptom at Jerusalem. On the other hand, Shapiro observed a considerable tendency to hæmorrhage among papataci fever patients in Haifa: in 10% of his cases nasal hæmorrhage occurred, in six cases diarrhœa with blood in the stool, in five cases hæmorrhage from the uterus, and in two severe cases blood in the urine. These findings are unusual. Inflammation of the kidneys has been reported in only one case outside Palestine (Gatti), and has not been seen by me clearly. Three cases in which glomerulonephritis occurred have been reported from Haifa.

The Blood Picture.

The descriptions of the blood picture presented by different authors are comparatively uniform (Part I). Kennedy (1937) published new findings as regards the leucocyte picture in papataci fever cases in Iraq. According to this author the leucocyte status is usually given as a leucopenia with absolute neutropenia and monocytosis. These findings tended to be less pronounced on the second and third days than on the first day of the fever. The number of eosinophile cells was reduced to less than half the normal figure. A striking character of the white cells was the large proportion in which degenerative changes had occurred. Smear and basket cells were common; the granulation of many neutrophile cells was deficient and even absent, and numbers of monocytes were vacuolated or had pale, diffuse cytoplasm and lightly staining nuclei and the chromatin network had a washed-out appearance. Equally striking was the exceedingly low polynuclear index. The deviation was the most left-handed of all the groups. Confirmation of these statements from other countries should be awaited. Moshkovsky found in Moscow (1936) considerable reduction in the number of lymphocytes on the first and sometimes on the second day of the fever (average, 500 per cubic millimetre). This symptom was never reported previously. If it is confirmed, it will be of diagnostic value as a means of differentiating papataci fever from dengue. Kligler (1928) found yellow colouring of the serum with normal pigmentation of the scleræ and urine in a number of cases of papataci fever.

The Cerebro-Spinal Fluid.

Findings in the cerebro-spinal fluid were first reported by Le Gac (1937, 1939). The fluid is transparent and its pressure is greatly increased. This plausibly explains the pains in the head and back and the low pulse rate. The protein level is uniformly high, higher than in dengue. The number of cells is small, not over eleven per cubic millimetre. The cells are exclusively lymphocytes. With regard to the findings in the Guillain test, reference should be made to the work of Le Gac. The possible existence of a connexion between the reported findings in the cerebro-spinal fluid and the condition described as benign lymphocytic meningitis has greatly complicated the position. A. S. Pearson (1940) examined fifteen patients admitted to a military hospital for papataci fever, inflamed throat, pain in the neck and head, or stiffness in the neck and the presence of Kernig's sign. Of these, eight were shown by lumbar puncture to be suffering from benign lymphocytic meningitis and seven to be suffering from papataci fever. The cerebro-spinal fluid pressure was normal in six of the papataci fever cases and slightly increased in one case. Of the eight cases of benign lymphocytic meningitis, the pressure was normal in four and slightly or moderately increased in four. All the cells found in the fluid were lymphocytes. They numbered per cubic millimetre 74 to 332 in benign lymphocytic meningitis and one to five in papataci fever. Most of the common symptoms of papataci fever are also presented in benign lymphocytic meningitis. Diarrhœa and muscle pains, however, are more frequent in papataci fever than in benign lymphocytic meningitis; pain in the back of the head and vomiting are rather more frequent and stiffness of the neck is much more frequent in benign lymphocytic meningitis; a rise in temperature and a high pulse rate are more pronounced in papataci fever than in benign lymphocytic meningitis. The tendency to draw the head backwards is a contraindication of papataci fever. Nevertheless, distinction between papataci fever and benign lymphocytic meningitis is difficult unless lumbar puncture enables a definite decision to be reached. It seems probable that benign lymphocytic meningitis is not a uniform infection but a group of diseases, and that the virus of sandfly fever is capable of producting the condition. Present conclusions, in view of the small number of cases so far investigated, cannot be final.

Cardinal Symptoms.

It is evident that no list of cardinal features of papataci fever, even if these are stated to be such as occur sometimes frequently and sometimes not at all, has won

general acceptance. Even Sticker, who recognized three distinct clinical forms of papataci fever, fails in any one of his type descriptions to give an adequate representation of papataci fever in Mediterranean countries. He lists the cardinal symptoms in the following order: stomach disorder, pain in the limbs, weakness, occasional psychic depression. In contradiction to the majority of investigators he does not mention pain in the eyes, diarrhœa and conjunctivitis. His description conforms in these respects to my own findings. It cannot be stated, however, that he has described papataci fever as it is generally encountered.

Recurrence.

The possibility of recurrence even after an interval of three weeks from the first attack of fever has already been demonstrated by Taussig. He found recurrence of papataci fever in patients living outside possible areas of infection. The incidence of recurrences varies between different epidemics. In Malta, in one summer season recurrences were observed in 15% to 20% of the cases of papataci fever. Muehlens states that recurrences are possible. Sticker considers them frequent; in military camps, according to his summary, they have occurred one to five days and as late as two to three weeks after the first fever spell. In Palestine Shapiro found numerous recurrences in Haifa. I have myself seen only seven recurrences in a total of 210 cases. Walker and Dods noted several "indubitable cases of recurrence"; but it is their opinion that the frequency of recurrence has been exaggerated in the literature. Recurrences took place in his cases sometimes even after several weeks or months from the first fever spell (see below). Sometimes the recurrence proved milder than the original attack (according to Manson-Bahr this is usual); sometimes it was greater in severity and presented the same symptoms, but in aggravated form; and sometimes it began with less pronounced symptoms, which became aggravated after one or two days and persisted for four or five days. Patients with persistent pain in the head and eyes seemed particularly prone to recurrences. In the recurrences seen by me at Jerusalem, pain in the thighs was always observed, so far as I can recall. Megaw confirms that the pains which characterize the original fever spell also mark the recurrence. Lambert (1944), on the other hand, found neither pain nor exanthem in the recurrence. This was in contrast to the finding in dengue, in which recurrences presented the entire original symptom picture. The contradictions in the literature on this as on other points are not likely to be due to errors of observation, but rather to a mistaken attempt by different authors to draw general conclusions from specific observations.

Second Infections.

Second infections no doubt also occur. If they occur one or even three weeks after the original fever spell, they are difficult to distinguish from recurrence. Second infections have been much discussed in the literature. In Palestine Shapiro (1926) found a second infection four or five months after a first fever attack. Among his cases of papataci fever, several reliable patients reported having suffered from the same infection one and two years earlier, and some even stated that they had suffered from papataci fever repeatedly every year in three successive years. A similar report has come from Syria (Lepine, 1927; compare also Walker and Dods). Kleeberg recorded three fever attacks in the same patient in the course of a single summer. Doerr (1913), however, held that an acquired immunity to papataci fever generally lasted through life; and Megaw, summing up the opinion of several investigators, has stated that acquired immunity is strong and persistent. Doerr and Russ have recanted their statements in this regard. It appears that there is in general specific immunity from papataci fever which lasts for about one year (according to Shortt). It is significant that in Palestine the main sufferers from papataci fever are immigrants. In the last war Shilling found papataci fever among all German soldiers stationed in Palestine, but none among Arabs. Of all papataci fever patients received at the Haddasah Hospital in Haifa during two successive years, 60% and 75% were immigrants resident in Palestine for less than one year. Shapiro and others at Haifa have found not one case of papataci fever among Palestine-born or among Arab and Sefardi children, and they believe that immunity in these population groups may be inherited. Kennedy (1937) reports from Bagdad that most European residents suffer an attack of papataci fever in their first year of residence. It is of further interest here to note that, according to an observation confirmed from many sides, papataci fever does not confer immunity against harrarah; nor again does harrarah confer immunity against papataci fever, although both these conditions are caused by sandflies. (For a discussion of the relation between sandfly bite and harrarah, see Dostrovsky, Shapiro, Dubarry, 1941, and Boycott.) According to Zlocisti (Palestine), acquired immunity from papataci fever lapses after a year or two of residence in a changed locality.

Convalescence.

I was told about nine years ago that convalescence in cases of papataci fever at Haifa is long drawn out and marked by psychic depression. Army personnel who had experienced papataci fever were granted convalescent leaves of about three weeks. I cannot now judge of the truth of these claims, but Shapiro in his report on papataci fever in Haifa during seven years mentions no persistent symptom other than stomach catarrh. In Jerusalem, I have seen no case in which convalescence was prolonged or accompanied by psychic depression. My patients left bed within a day or two of the return of their temperature to normal and resumed their studies forthwith. Walker and Dods found their patients weak in varying degree after the fever. The large majority, however, left bed within a day of return of their temperature to normal and hospital after two days, and assumed light service tasks immediately afterwards. Psychic depression was observed in some cases. Kleeberg agrees that the emphasis hitherto placed on this symptom both in popular belief and in the literature is ill-judged, and he does not consider that convalescence from papataci fever lasts weeks or that psychic depression marks the convalescence except in the case of nervous or constitutionally feeble subjects. The reports in the literature, on the other hand, suggest that the convalescence may sometimes or even often be difficult, different authors emphasizing this feature to a varying degree. Megaw considers convalescence rapid, but sometimes accompanied by depression. Le Gac (1928) considers it slow. According to Manson-Bahr, weakness may last for a week or two. According to Doerr, weakness of the muscles, diarrhœa, psychic depression and other symptoms may persist for weeks. According to Sticker, convalescence is in some instances rapid and soon complete, but in a greater number of cases prolonged for weeks. In Palestine Kligler (1928) found papataci fever to be succeeded by a period of psychic and physical depression. Subsequent reports from Palestine, on the other hand, emphasize the brevity and rapidity of the convalescence. Zlocisti observed difficult convalescence at Istambul. According to him, rapid onset of temperature and slow convalescence are among the most striking features of papataci fever; the weakness and heaviness of the limbs and the melancholy depression following fever are held to be of an intensity rare even aften pneumonia. Kennedy reports from Iraq that the papataci fever infection, although brief, is followed by an aftermath of mental and bodily depression which may last for months. He believes that this result is comprehensible in view of the degenerative changes which occur in the blood picture during the fever. In this respect, as in others, the picture evidently lacks uniformity, and generalization should be avoided.

To sum up, it is clear that in clinical manifestation papataci fever, though uniform within any given epidemic, can be distinctly variable. The variation of the clinical manifestation seems to be not so much geographical as one between different epidemics. Sometimes, indeed, there is surprising similarity between epidemics of papataci fever in widely separated countries—for example, Malta, Palestine and India. On the other hand, pronounced differences in clinical manifestation may distinguish

successive epidemics in one and the same country—for example, Palestine.

Our clinical picture becomes the more complex as the number of reports in the literature grows. No statement is further from truth than Zlocisti's, who ascribed a rounded uniform syndrome to papataci fever. Lists of alleged cardinal symptoms of papataci fever drawn up by any one investigator have without exception been rejected by his successors. This aspect will be even more in evidence in a later paper, when I shall discuss the differential diagnosis of papataci fever. The alleged "cardinal symptoms" can be particularly misleading in atypical epidemics or in the incipient stages of an epidemic. The fact seems to be that numbers of symptoms tend in given papataci fever epidemics to occur together. For this reason, the suggestion by Sticker that papataci fever occurs in three or four principal forms, which are distinguished from one another by a difference of emphasis on particular groups of symptoms, commends itself to me.

PART III.

Treatment is generally superfluous, the severe phase of fever being brief and the prognosis always favourable. The mortality rate is nil. All the patients, including those with short fevers who were not listed in my table, were treated at home. Patients were informed that the symptoms would last for two days. I was occasionally obliged to give treatment to alleviate the severe pain in the thighs, but achieved no definite success in this direction. Opium has sometimes been recommended. Quinine appears to aggravate the headache. Le Gac found lumbar puncture to have an effect on the symptoms due to cerebro-spinal fluid pressure, particularly headache.

A brief note on methods of prophylaxis by the eradication of the adult sandfly may be added here. The efficacy of sandfly control measures is well known. Several good means of control are available. Sandflies dislike moving air, and it is of importance therefore to ensure good aeration. Communities exposed to winds suffer less from papataci fever than communities in low situations. Upper stories of buildings are less liable to sandfly attack than are low stories. Moist straw, plant residues, building wastes, and other sources of dust should be cleaned away. Experience in Jerusalem does not, however, support the view that the sandflies disappear if strict cleanliness is observed. An ordinary mosquito net does not keep out the sandfly. An ointment containing eucalyptus and other constituents is in use in the British Army. As a further measure, the wearing of shorts by army personnel during evening hours has been prohibited. Destruction of sandflies within rooms is particularly important. "Flit", as used to destroy mosquitoes, is ineffective, but the method of Megaw can be recommended. In this, "Flit" of good quality is allowed to act for a number of hours in rooms with closed windows. The sandflies recover on the following day, but are numbered and fail to bite on the same night. Application of "Flit" in the above manner on two successive days destroys the sandflies. According to Anderson, the use of certain sprays effectively reduces the number of sandflies for no more than twelve hours. Perfilsev reported on a successful campaign against larvæ and adult flies in Moscow in 1941. He considers the use of "Flytox" to be the best way of destroying the adult fly. A most effective method is the use of fire. This is applied in the form of a torch consisting of cotton wool, tied to a broom handle and dipped in alcohol. The lighted torch burns for two or three minutes and should be passed during this interval along angles of the ceiling and the walls as well as over all corners of the ceiling and floor. The sandflies, at least in Palestine, are extremely sluggish and fall one by one into the flame. Two or three treatments with fire in a week prevent the flies from biting. Patients and members of the household must learn to recognize small unmoving specks as sandflies. They generally deny the presence of sandflies in their room until convinced by demonstration. Students of Phlebotomus have stated that this insect responds to disturbances, even during a meal, with an immediate escape reaction. In Palestine such avoiding reactions are rare. Fire as a means of controlling Phlebotomus has been ignored or criticized by several who have written on this subject (for example, Whittingham, Schuckman and others). In my experience, however, control by fire has proved most effective.

Attempts to confer immunity have been described by Pirumov (1939), who injected blood of papataci fever patients in mixtures with blood from convalescent papataci fever patients, and by Moshkovsky (1939), who obtained no clear results.

SUMMARY.

Two hundred and ten cases of sandfly fever (papataci fever) among the students of the Hebrew University, Jerusalem, have been reviewed from the clinical standpoint. The symptoms manifested in these cases have been compared with those found by Walker and Dods in an Australian army hospital at Gaza and with symptoms described in literature on papataci fever in Palestine and elsewhere. My observations agree on the whole with those of Walker and Dods. Almost every patient in my series complained of severe pain in the thigh, a symptom absent in the cases of Walker and Dods. Walker and Dods saw in almost all patients an enanthem of the palate rarely found by others. A comparison of the present series with others in different epidemics reveals the existence of considerable variations in the symptomatology of papataci fever. I feel that these variations are not determined by geographical factors, but by the fact that papataci fever has three or four different clinical forms, any of which may occur in the same country. Various reviews of the subject are at variance with each other. No single review gives a true picture of the entire literature, but all authors seem more or less to have followed the descriptions of certain forms of the disease.

In conclusion, preventive therapy is discussed. The differential diagnosis from dengue will be discussed in a separate paper.

THE RELATIONSHIP OF FOOD TO HEALTH.[1]

By MILDRED HUTCHINGS, M.B., B.S.,
Melbourne.

THERE is a wide and growing appreciation of the importance of nutrition. Many of the food factors necessary to the body are becoming better understood, and it is now acknowledged that sound medical treatment includes not only a watchful eye for the various deficiency diseases, but also advice on diet and nutrition. Everyone present has by now worked out a scheme of explanation which is used over and over again to impress the principles of proper feeding on patients.

There is still a need, however, to broaden our understanding of the importance of food to health, and more and more attention is being given to the wider implications of healthful feeding. Alexis Carrel has said: "Modern man is delicate", and which of us can find it in our hearts to refute this statement? Evidence from Britain indicates the modern trends in man's health. During the past two hundred years the diet of the people of Britain has undergone great changes, and their physique has deteriorated. In addition to the rise in deficiency diseases, notably rickets and scurvy, the average stature of the people has fallen. Twice during the nineteenth century the height of recruits for the army had to be reduced, first from five feet six inches to five feet three inches, and then from five feet three inches to five feet. This deterioration in the nutritional state and physique of the British people was masked by the reduction in death rate which followed the elimination of epidemic and endemic diseases, such as cholera, enteric fever and typhus, through the application of modern sanitary principles. The deterioration of physique became evident, however, when a large number of recruits was medically examined during the Boer War. Military authorities were alarmed at the poor quality of

[1] Read at a meeting of the Victorian Medical Women's Society on October 22, 1945.

recruits, and a commission was set up to inquire into the reason. The medical examination of recruits in the 1914-1918 war again revealed the poor physical condition of the people; and still in 1935, not fewer than 32% of prospective recruits were below the comparatively low standard of physique required by the army.

After the last war the importance of the various food factors was becoming better understood, and certain measures such as the school milk scheme and the free issue of milk and vitamin concentrates at child welfare and pre-natal clinics did produce a corresponding improvement in national health and physique. The consumption of protective foods increased roughly about 50%. The grosser forms of deficiency disease disappeared. The general health, especially of mothers and children, improved, and children leaving school were between two and three inches taller than their parents had been at the same age. Sir John Boyd Orr, commenting on these facts, stated that "other factors, such as improved housing and better medical attention, doubtless contributed to this result, but the outstanding factor was the improvement in the diet of the people, and in the resulting state of their nutrition".

How dependent health can be on food is shown in the observation of Dr. M'Gonigle, of Stockton-on-Tees. Stockton-on-Tees is a marketing town with slums, and the Town Council determined to carry out a vigorous policy of better housing. Some 153 families comprising over 700 people were moved from the slums to a new housing estate named Mount Pleasant, and a larger number were left in the slums. After a time, Dr. M'Gonigle, the medical officer of health, noticed that the health of the inhabitants of Mount Pleasant, instead of improving or at least remaining stationary, began to deteriorate. He found that the death rate had increased by 46% over the mean standard rates for the same individuals over the previous five years, while the death rate in the unchanged slum remained stationary. There was no epidemic or other recognized cause to explain it. These families were better housed, with better sanitation, and less over-crowding than those still in the slums. However, the mystery was unravelled when Dr. M'Gonigle studied the family budgets. The rental at Mount Pleasant had increased from 4s. 8d. to 9s. per week, with the result that the purchase of food had fallen from less than 4s. to less than 3s. per head per week. Man is what he eats, and in spite of better living conditions the people of Mount Pleasant were unable to maintain their hold on life because their food had deteriorated.

How far can we expect to go when we leave this low level at which people need a certain minimum of food with which to maintain life, and proceed towards optimum feeding and higher levels of health? Experiments on the constructive side have proved equally illuminating. For instance, at a school which was said to provide a good all round diet for its pupils, a proportion of the boys were given an extra pint of milk per day, with a resultant increase in vigour and stature over the boys who were not given the extra milk. Again, at a school in New Zealand, a changeover was made from vegetables grown with fertilizers to vegetables grown on compost-treated soil, and the changeover was marked by some very dramatic results. Colds and catarrh became rare, and any cases of influenza very mild. During a widespread measles epidemic, the new boys suffered the more acute attack, while boys who had been at the hostel a year or more sustained milder attacks with more rapid convalescence. The periodic reports on the boys' teeth improved steadily. Constipation and bilious attacks became rare. During the three years of observation there was a marked physical growth and development. Accidents were fewer, suggesting better development of bone and muscle and greater resilience to strains; and the boys became increasingly active and vigorous.

In these experiments, in one case milk, in another case fresh fruit and vegetables, have brought an improvement in health and vigour of school boys who had previously been considered well fed and "as healthy as could be expected". Is it possible then that we have come to accept a comparatively low standard of health as normal, and have resigned ourselves too easily to the prevalence of many ailments? These experiments certainly suggest that it is time we took stock of our standards, for to content ourselves with less than our birthright of health would be foolish in the extreme.

Dr. Wrench, a British medical man, has studied the sign-posts to better health in his book "The Wheel of Health", and he asks: "Why was it as students we were always presented with sick or convalescent people for our teaching? Why was it presumed that we knew about health in its fullness?" "Perhaps", he writes, "our pre-occupation with illness comes about only from viewing diseases from within. Perhaps our attitude would change if we started by learning all we could about the healthiest people and animals whom we could discover. By studying the wings of bird in flight we have made our machines carry us through the air. By studying some of the healthiest people in the world, we might so improve our health as to become a really healthy people ourselves."

There are, in fact, several communities in the world today who maintain a standard of health so high that it deserves the title of perfect health. These communities are widely scattered over the globe, and their study makes fascinating reading.

The Eskimos, for example, are a group renowned for their health and for their perfect teeth. Except for a little vegetable matter during the short Arctic summer, their diet consists of sea animals and sea birds. There is little waste. They eat everything that can be eaten. When the food was frozen they often ate it raw. Stefansson, who lived amongst the Eskimos for years, compares eating the frozen fish with eating oysters. The fish would be taken from the storage dump, left inside the cabin until they started to thaw, and then eaten rather as one eats a corn cob, biting off the flesh around the spinal column, eating the liver and most of the bones and leaving the entrails. Anything which remained was then deposited on a tray and fed to the dogs. The fish was eaten raw twice a day, and boiled for the third meal. After a preliminary adjustment, Stefansson found the diet most enjoyable, and ceased to find it monotonous. All the time he was with the Eskimos he enjoyed perfect health, and he describes the vigour and the absence of disease amongst the colonies he visited.

With Eskimos can be grouped the Icelanders and the Faroe islanders, who enjoy similar health and similar food. The Red Indian is another meat eater, living as a hunter on the prairies and consuming the whole of his prey. Both the Icelander and the Red Indian have suffered serious falling off in general health and stamina, and in the quality of their teeth, since they adopted the flour, sugar and other refined foods from their contact with civilized communities. With all these people—the Eskimo, the Icelanders and the Indian—the whole of the food is eaten, and the law of return is respected. All waste is returned to the environment whence it came. There is no robbing of the environment, and there is no fragmentation of the food, and the health of the communities has continued for centuries.

On the sub-tropical islands of Tristan da Cunha in the South Atlantic, the islanders are described as of good physique, well set up, clean and well nourished. Their children are breast fed for at least a year, and the islanders in 1932 exhibited almost perfect teeth. The diet consists principally of fish, potatoes and eggs; meat is eaten occasionally, milk and butter are sufficient. Vegetables are not plentiful, but beetroot, lettuce, beans and onions are now being grown. Imported flour and sugar are regarded as luxuries, and concurrent with increased imports of these items the teeth of the people have begun to deteriorate.

The food of the Tristan islanders, with their fish, potatoes and eggs, is a stepping stone between the all-meat diet of the Eskimos and the lactovegetarian diet of the tribes seen on the north-west frontier of India, who are renowned for their health and physique. These tribes are the Hunza, the Sikhs and the Pathans; and outstanding among these are the Hunza. Sir Robert McCarrison, who at one time was health officer for the district, has written: "These people are unsurpassed by any Indian race in per-

XUM

fection of physique; they are longlived, vigorous in youth and age, capable of great endurance, and enjoy a remarkable freedom from disease." He said that he had never seen a case of peptic ulcer, appendicitis, cancer or asthenic dyspepsia amongst them. The only patients treated were sufferers from granular conjunctivitis (due to their long winter confinement in badly ventilated houses), senile cataract (which he attributes to the same cause) and accidents. He speaks of their "buoyant abdominal health", and contrasts it with the dyspepsias, the constipation, in short with the abdomen-conscious peoples of the West.

The Hunza have long been famous to explorers who have passed through their country, and who have written of the Hunza that they are unsurpassed as porters, both for their amazing endurance and for their abiding cheerfulness. Their cheerfulness has called for repeated comment, and their feats of endurance are hard to believe. One explorer tells of a messenger whom he was amazed to see return from a mission in seven days, having travelled 280 miles on foot, speeding along a track two to four feet wide, sometimes supported only on stakes let into the wall of the cliff, and twice crossing the Mintaka Pass, which is the height of Mont Blanc. The messenger was quite fresh and undisturbed, and did not consider that what he had done was unusual. Colonel Schomberg, who lived in the district for some years, writes: "It is quite a usual thing for a Hunza man to walk the 60 miles to Gilgit, do his business and return direct." Schomberg also describes one of them who made a hole in the ice at either side of a broad pond, and then for sheer enjoyment dived in at one hole, swam under the ice, and came out at the other end.

Here then is health of a degree unknown to us, and the mode of life of these people is worthy of close study. The Hunza are an agricultural community with a deep interest in their land. Their farms consist of small terraced fields, built into the steep sides of the mountain valley, irrigated from an immense aqueduct, the Berber, which itself is famous throughout Central Asia. All waste material is composted and returned to the soil as fertilizer, and a total area of five square miles under cultivation supports a population of over 10,000 people. Their form of agriculture seems to be identical with that of the Incas of Peru, and like it, is able to sustain a very large population per acre.

The diet of the Hunza consists of various cereals, vegetables and fruit, pulses, milk and milk products. Meat is taken rarely and eggs never, as chickens destroy the crops and so are not kept. Their foods are of a particularly high quality, and there are points of interest to us both in the way they are eaten and in the way they are cultivated. Of cereal foods, the Hunza prefers wheat, but it is always freshly ground, and the whole of the grain is used in the making of their bread or unleavened chapattis. Milk is taken, fresh or soured, or as buttermilk, clarified butter and cheese. Their vegetables make a familiar list—leafy green vegetables, potatoes, root vegetables, peas, beans and various pulses. Vegetables are frequently eaten raw, or are cooked in covered pots with a little water, and thus virtually are steamed, and the vegetable water is always drunk. Fruit is taken in quantity—chiefly apricots and mulberries—which in season are eaten fresh, and large quantities are dried in the sun and stored for winter use. In short, food of the Hunza is similar to our own, but each item is consumed in its entirety—there is no fragmentation in their food preparaton, neither is there any fragmentation in their cultivation, no dependence on fertilizers to supply the needs of the soil, but a return to the soil of all waste materials, human, animal and vegetable; and the soil has acknowledged the blessing of this respect for its needs by supporting an astoundingly high population in vigorous health for thousands of years.

So impressed was McCarrison with the physique of the north-west frontier tribes in comparison with the peoples of other parts of India, that he determined to experiment with the factor which he considered responsible for these differences, namely the food. He took large numbers of rats, housed them under conditions as nearly perfect as he could devise, and proceeded to feed them with the food of the various peoples of India. His stock colony he fed on a diet identical with the north-west frontier tribes. This stock colony was maintained throughout the experiment, the rats being killed and examined at the age of two years, which is comparable, as nearly as the life of a laboratory animal can be considered comparable, with fifty years of human life. These rats were healthy and contented and free from disease. Their infant mortality was negligible, being confined to accidental deaths; and at post-mortem examination the two-year-olds revealed no disease, the only abnormality being an occasional tapeworm cyst.

The remainder of the rats fared less well. The physique, as determined by length and weight for age, deteriorated as their diet fell from the standard of the controls. Infant mortality also rose accordingly, and amongst the rats fed on the diet of the Madrassi, or on the diet of the British working class, disease broke out, and the list of diseases is formidable—respiratory and abdominal diseases, kidney diseases, diseases of the reproductive organs, skin affections, blood diseases, heart and nervous diseases, diseased teeth and bones. The list in its entirety looks like the index to a textbook of medicine, and includes "feeble growth, feeble appetite, weakness, lassitude, and illtemper". The stock rats were not only a healthy but a contented community. The underfed rats, on the other hand, were irritable, bit their keeper's hand, fought amongst themselves, and began to kill and eat the weaker ones, so that they had to be segregated.

These experiments, carried out under constant conditions of housing, air, sunlight and sanitation, demonstrate the relationship between physique and good feeding; and the fact that a colony of rats has been bred healthy and free from disease, coupled with the fact that communities of healthy, disease-free people exist, should be sufficient to lift the peoples of the world into action. The biggest and bravest attempt made so far was at the Hot Springs Conference, but many of the profession who have heard the astounding news that disease can be wiped out by better feeding have not been able to believe it. It is like the general disbelief in the possibility of wounds without pus, which followed Lister's introduction of asepsis; and until the profession really believes that full health is attainable, or at least that the project is worth trying, we cannot expect the public to believe or to act. There is an urgent need for community experiments along these lines, and some have already begun in Britain. One is the Papworth Colony, breeding healthy children in spite of their exposure to tuberculous infection; and another is the open air school at Deptford where the children are given milk, fruit and vegetables, and wholemeal bread at midday. The bodily health and dental health and the stamina of these children are remarkable, especially when the children are contrasted with the remaining children of the district, whose frequent attendance at the medical clinic emphasizes the difference between the sickly and the healthy groups. A third human experiment is in progress in Cheshire, where the 600 panel doctors have taken a firm stand in advising the people on prevention of disease through sound nutrition and sound cultivation. In Cheshire the ante-natal and child welfare schemes are well organized, and each doctor plays his part. Nutrition is a primary concern—the doctor not only tells his patients what to eat, but how to prepare the food, and in the record of the results these two extracts speak for themselves. The first is: "With rare exceptions, and those almost always strangers, the mothers feed their infants at the breast for nine months, and then wean them by a year or a little more." The second: "The teeth are a good index of the fidelity of the mother to carry out the regimen, both before and after the baby is born; and it may be said that perfect sets are becoming more common." They also encourage their patients to grow their own salad vegetables, and competitions are held for the best vegetables grown with compost.

This leads us to the second big difference between the Hunza food habits and our own, namely, the freshness and quality of the food and its method of cultivation. In considering the problem of return of all waste to the soil, we must distinguish between the isolated communities, apparently free from infections, and our own problem of cultivation.

In China, as with the Hunza, the composting of all waste materials has been practised for many centuries. In the communities where each family had enough land to supply its own needs, the physique of the peasant has been outstanding. They have been described as "cheerful, vigorous and healthy in appearance", "the equal of large Americans in frame, but without surplus flesh", and so on. However, in the overpopulated areas, semi-starvation has become the rule, and infection taken an appalling toll of life; so that when the question of return to the soil is raised here, we shake our heads and say: "No, that is impossible, look at the Chinese epidemics of typhoid and cholera"—and we continue to pour the life of our soil into the sea, or otherwise lock it up in small areas. The law of return of all waste matters to the soil has been disregarded in our own and other countries, with devastating results both to our land and to our physique, and if we are to get back to obedience to this law, we must set in hand research to determine how to free our human wastes from infection in order that they may be used as fertilizer. We should, however, not be content to wait on such research, but straightway devise means of using our municipal wastes to contribute to our soil fertility.

Why is this question of return to the soil of such great importance? There is abundant evidence to show that the humus content of the soil is important to the quality of the plants. It is a prerequisite to the activity of certain fungi, which form a symbiotic association with the roots of the majority of plants and trees, and appear to make an essential contribution to plant feeding by a process of predigestion of various elements in the soil. Though plant development can occur without these fungi, better and more disease-resistant plants develop where the fungi are active. Evidence of the necessity for humus in the soil cannot be obtained from the laboratory, for vegetables grown with fertilizer can look as well as those grown on natural soil, and their chemical analysis for the known nutrients is identical. It is only when the two varieties are fed to animals that the difference can be demonstrated. It has been shown that cattle will avoid areas treated with fertilizers and will invariably choose the humus-grown fodder. Rabbits fed on cabbage grown with fertilizers become smelly and apathetic and die, but can be cured by humus-grown plants. There are other similar experiments, but most important of all are the records of the boys' schools, one in England, the other in New Zealand which was cited earlier, where the change from fertilizer-grown to humus-grown vegetables produced such a dramatic fall in infections and other common ailments, and produced also a rise in the health and vigour of the boys.

It is interesting to speculate, in view of the value of the penicillins in combating so many infections, whether this association of the fungi in fertile soil assisting with plant nutrition, and the resistance to infection of well-fed people and well-fed animals, may perhaps show us the next link in the chain of food factors necessary, both to health and to that "natural resistance" to infection which is as yet little understood.

It would appear from the study of the healthy peoples that perfect health is the birthright of man, and we have indeed a gigantic task ahead if we are to recover perfect health for the peoples of the world. We must begin by enlarging our conception of food from the narrow confines of a human diet of whole foods, to the health of the plants and animals on which we depend, and in the last analysis to restoration of the health of the soil. Health is a compound of all three, and fragmentation at any stage will impair our achievement.

With the conception in mind of the wholeness of cycle between man and his environment, what is there for us to do?

One immediate task is to spread the knowledge of good feeding amongst all the people whom we advise, and in this we have already begun to make our contribution. We could make a still wider contribution if we, as a profession, became more vocal in advising better food for better health. The extent of sickness amongst the community is so great that the public would welcome firm recommendations from the profession as to how much of the present ill health could be dispelled. We need a body of experts who can present these ideas to the public; and who can sponsor, coordinate and publish the research which is so badly needed. There is just that body of experts whom we need in the Nutrition Committee of the National Health and Medical Research Council. This committee does in fact sponsor research, but it is responsible to the Director-General of Health, and through him to the Minister, and its recommendations are not given direct to the Press, nor made known to the public except through the department. We should, I feel, press for autonomy for this body of experts, for it is a vital need for the community that authoritative statements be made to encourage any measure which will contribute to the health of our people and of our soil.

There are several lines along which this body of experts, or we ourselves, could take a stand—one, for instance, is the standardization of a national loaf. The lack of this insurance of a staple item of our diet is a shortcoming of great importance, and one about which there is much confused thinking. One objection raised to a wholemeal loaf is the action of phytic acid, in the wheat, in limiting absorption of calcium and iron. This emphasis on phytic acid is based on experimental work, for example, that of McCance and Widdowson, and is dependent on fæcal analysis after intake of various mixtures of flour and bran with or without phytic acid by ten people over a period of weeks or months. The diet described includes 40% to 50% of the Calories in the form of the flour mixtures; much of it taken in one pound or more of bread daily, and the remainder as cakes, pastry, *et cetera*. But there is no account of the whole diet, no mention of the freshness of the foods used, no use even of a plain wholemeal flour—all the flours are special mixtures of the various constituents. It was, in short, a specialized piece of research, a study of a sideshow, interesting and useful in itself, indicating that at the present state of our knowledge and of our food combinations it is advisable to add calcium to wholemeal bread; but it is not a study of a long-term diet of natural foods. It must be considered as a valuable fractional experiment, but not as a yardstick in shaping our food pattern. Objections to wholemeal bread are being based on such work, and seem quite illogical in view of the fact that primitive people the world over have used the whole of their grain whenever cereals formed a part of their diet. It seems folly for us to fragment our wheat, in view of the health and vigour sustained by the Hunza, the Sikhs and the Pathans on their whole-food diets, including as a staple item wholegrain wheat chapattis; but we need scientific studies of these healthy tribes and of their whole diet to help us to determine optimum human requirements for various food factors, and to tell us too how this phytic acid difficulty is in fact compensated.

Another item about which we should advise the public is the need for distribution of milk to the vulnerable groups. At the present time when dairy products are in short supply throughout the world, this could not be done without greatly increasing Australian overall consumption, unless, or possibly even if, the adult population was very stringently rationed. There is, however, one source of milk which is little used, and that is skimmed milk. Skimmed milk contains all the protein and calcium of whole milk and lacks only the fat and the fat soluble vitamins. Wider use of skimmed milk, which in some country districts is poured down the drain, could be used temporarily to alleviate the immediate problem of shortage.

A third important measure to which the profession could give support is the distribution of midday meals to school children. This would act in several ways. It would ensure one good meal a day to each child. It would supply good food for this meal (we should advocate the inclusion of milk, vegetables and fruit), in place of the pies, cakes and sandwiches which so often are depended upon to sustain the children at midday. Thirdly it would provide, for parents and children alike, an example of what is meant by good feeding. We cannot change the food pattern of our people—their preference for white bread, sugar, sweet tea and jam—unless we are prepared to devote time

XUM

and energy to a long period of education; but if we set an example of sound feeding before the children, we would be making a wise beginning. In this field of nutrition education the Australian Red Cross Society is doing splendid work. The society has appointed two dietitians of first-rate calibre to visit each State, addressing mothers' clubs, schools and factories on nutrition matters, and arranging courses in home management which teach the housewife, not only food values, but food preparation, the balancing of menus and other home arts. This work is being extended by the appointment of two more dietitians, and we should follow the lead Red Cross has given us in tackling this important work.

A fourth item in which the profession could interest itself is a revision of the basic wage to allow for the purchase of sufficient protective foods. Fresh fruit and vegetables are expensive items, and so is milk in quantity, and it is idle for us to advise our poorer patients to eat more of them if their income does not allow it. These latter considerations of education and purchasing power also apply to our many institutions. It should be possible to advocate standards of feeding, so that the public would have clearly in mind both the standard required, and the need to allow sufficient money to permit proper feeding of the children, the hospital patients, the old people and the mental patients who fill our institutions. It is, of course, particularly urgent for optimal feeding to be ensured in all our homes for children.

Apart from these considerations of food consumption, there are the broad and equally important questions of cultivation of the food and distribution while it is fresh. As Sir Robert McCarrison wrote: "There is something in the freshness and quality of foods which is not yet accounted for by the known chemical ingredients of food—protein, fat, carbohydrate, minerals and vitamins." The readoption of the principle of return of all wastes to the soil should be part and parcel of our health programme, for on this depend the maintenance of the humus content of the soil and the contribution of the mycorrhizal fungi to plant quality. The practice of compost culture is well known to many gardeners, and is being more and more widely adopted by farmers in England and in New Zealand. In some areas of Australia we can adopt it, too; but the wide open spaces of our grazing country and our wheat belts are calling for no less help to restore their steadily falling fertility, and we need a full research programme to determine how these principles of return can be applied to Australian conditions.

In conclusion, consideration of this research work as a whole faces us with a question: Should we, as a profession, tell the people of our country that their birthright is a full and lively health such as almost beggars description, that much at least of their quota of human ills can be cast aside, and that thus and thus can they achieve full health? In other words, do we agree with the 600 doctors of Cheshire, who in their "Medical Testament" have written: "We conceive it to be our duty in the present state of knowledge, to point out that much, perhaps most, of this sickness is preventible, and would be prevented by the right feeding of our people." If we agree, let us make a start, and truly, as Celsus said in the year A.D. 30: "The cure of disease by means of diet is the most wonderful part of medicine."

Bibliography.

G. T. Wrench: "The Wheel of Health", 1938.

E. B. Balfour: "The Living Soil", 1943.

John Boyd Orr: "Food and the People", 1943.

Robert McCarrison: "Nutrition and Health" (Cantor Lectures, 1936), 1944.

Vilhjalmur Stefansson: "Adventures in Diet", reprinted from *Harper's Magazine*, November and December, 1935, January, 1936.

S. Mervyn Herbert: "Britain's Health", 1939.

R. A. McCance and E. M. Widdowson: "Mineral Metabolism of Healthy Adults on White and Brown Bread Dietaries", *Journal of Physiology*, Volume CI, 1942, pages 44-85.

A. Howard: "An Agricultural Testament", 1940.

Stanley B. Whitehead: "Gardener's Earth", 1945.

SOME COMPLICATIONS AND SEQUELÆ OF THE PROPHYLACTIC INOCULATIONS.[1]

By MICHAEL KELLY,

Department of Anatomy, University of Melbourne.

IN army medicine it is common for the soldier to blame "the needles" for a variety of ills; his rooted dislike of the prophylactic inoculations leads him to cast unmerited blame upon the procedure. It is usual for the medical officer to accept this essay in auto-diagnosis with a good deal of suspicion, and rightly so. In the majority of these cases the needles cannot be held blameworthy; but in a certain small proportion of chronic ailments of a rheumatic or neuritic type the history dates back to an acute illness which followed the inoculations. It is customary to regard the immediate effects as fundamentally distinct from the delayed effects and the late sequelæ. There is, however, no sharp line of demarcation. Untoward effects may appear immediately or they may be delayed for twenty-four days after the inoculations; and they may be seen at any interval between these two extremes.

Immediate Effects of Injection.

Faintness.

It is usual for two or three in every 100 soldiers to become faint immediately. This transient syncope is generally thought to be psychogenic; the mental tension, we are told, with its subsequent reaction results in a fall of blood-pressure of psychic origin. A moment's reflection, however, will show that this is an error; for soldiers do not faint under conditions of tension elsewhere. Babinski and Froment (1918) pointed out that immediate nervous phenomena were extremely rare in soldiers who were under prolonged bombardment or similar conditions of tension. The nervous hypothesis, moreover, is not confirmed by observations on the spot, for the most stolid men are quite as likely to faint as the more nervous ones. This inadequate explanation has been generally accepted without proof, while the facts point against it. There is little doubt that the injection itself is responsible for the reaction; and an interesting clue is provided by Bazett and McGlone (1928) and Waterston (1934), who observed during experiments upon themselves that the puncture of arterial coats, and sometimes of deep fascial planes, caused pain of a peculiar neuralgic quality, with such reflex concomitants as sweating, faintness and subjective sensations of warmth. In the case of the prophylactic injections, therefore, the immediate reaction probably is reflex in origin, caused by the stimulation of receptors in the deeper tissues. There are three possible mechanisms by which these receptors might be stimulated: (*a*) mechanically, by needle-prick; (*b*) mechanically, by distension of tissues with fluid; (*c*) chemically, by the nature of the injected material.

The reaction usually occurs so rapidly that absorption could not have taken place; and the theory that material must have been injected intravenously is too improbable for serious consideration. In rare cases, immediate deaths have been reported from intradermal sensitivity tests with egg-albumin (Lamson, 1924), glue (Cooke, 1922), guinea-pig hæmoglobin (Hunt, 1943) and horse serum (Ferguson, 1940). The psychic factor was eliminated in Ferguson's case, for the test was made under general anæsthesia. Death has been reported to follow bee-stings (Jex-Blake, 1942), and a profound local reaction occasionally follows mosquito-bite (Kattiwinkel, 1942). Keim and Wakefield (1939) reported a case of transverse myelitis following the intradermal diagnostic use of Frei antigen.

Anaphylaxis.

When an immediate reaction assumes these severe forms it is known as anaphylaxis, and I see no reason why the milder and more transient reactions should not be regarded as milder forms of anaphylaxis. There is every gradation between passing syncope and fatal collapse. Kojis (1942), who extensively reviewed the subject, collected records of

[1] Working with a grant from the National Health and Medical Research Council.

61 deaths after injection of serum. The amounts varied between one minim and 50 millilitres; and death was 100 times more common after intravenous injection, and ten times more after intramuscular than after subcutaneous injection. The first record of a fatal case was in 1896, though Magendie described the disorder in 1839; and Turner and Clarke (1943) state that Dennis in 1667 described a reaction which followed a transfusion of lamb's blood. In the great majority of cases of anaphylaxis, serum had been given previously, but one fatal case followed an intradermal sensitivity test (Ferguson).

Anaphylactic reactions are not confined to injections of horse serum. Boyd (1938), following 61,000 injections of tetanus toxoid, saw two severe reactions and twelve of moderate severity. Other cases have been reported by Whittingham (1940), Parish and Oakley (1940), Cunningham (1942), Rackeman (1942) and Edwards (1943). Edwards reported also a death with pulmonary œdema 20 minutes after an injection of tetanus toxoid combined with "T.A.B." vaccine. In the following case, described to the writer by the patient (a medical officer) an anaphylactic reaction followed tetanus toxoid.

CASE I. C.W.A. within a minute of his second tetanus toxoid injection felt an intense sensation of irritation in the nostrils. He broke out in huge blotches all over, and rapidly passed two motions. He felt very ill, respiratory distress came on and his eyelids began to swell; two officers who were with him thought he was dying. After an injection of adrenaline he improved, and within thirty minutes he was able to walk. Six hours later he felt no ill-effects.

Cardinale (1943) reported a case of severe anaphylaxis which came on after two hours. In Case II the reaction was delayed beyond the period customarily assigned to anaphylaxis.

CASE II. The present writer was hurriedly summoned to a hut where the soldiers were going to bed. One of them, who had had tetanus toxoid and "T.A.B." injections at 2 p.m., had a queer turn at 8.30 p.m. which frightened his friends. He fainted off and was irrational for a time, but recovered within a few minutes and on examination seemed only dazed. He was fit for duty next morning.

It is difficult to assign a set period to anaphylaxis. Reactions may occur at any interval up to twenty-four days after an injection. Occasionally (as in Case VIII) an early reaction continues without interruption into later sequelæ. In this case, too, the almost immediate reaction followed an injection of "T.A.B." vaccine without toxoid. Anaphylaxis may follow the injection of almost any foreign substance, but the probability is greater after horse serum.

Serum Sickness.

When the reaction is delayed, it is known as serum sickness. It appears in from 19% (Brownlee, 1925) to 40% (Kojis) of cases. It occurs from three to twenty-four days after the injection, but the majority appear from seven to eleven days (Kojis). Its commonest manifestation is urticaria, but rashes of all kinds may appear. Lymph glands may be enlarged, œdema may appear in various parts, and the patient may be febrile. Disorders of joints may vary from a mild arthralgia to a painful distension of many synovial cavities. There may be laryngeal spasm or œdema of the glottis, and severe abdominal pain may occur which may be mistaken for acute appendicitis (Bowers and Shupe, 1942). In three of Kojis's cases the central nervous system was involved; one patient died of encephalitis. The normal duration of the symptoms is two days, but an occasional case may become prolonged and intractable. Fox (1943) saw a fatal case of disseminated *lupus erythematosus* which followed an injection of anti-tetanic serum. In a case reported by Wadsworth and Brown (1940) acute heart failure complicated serum sickness, while in that of Robertson and Varmus (1944) nervous complications were accompanied by high blood pressure. Sulzberger (1943), who reported a case of chronic urticaria attributable to an injection of tetanus toxoid, points out that such an example as this tends to discredit the allergic hypothesis.

The appearance of serum sickness does not depend upon a previous sensitizing injection of serum, but Kojis advises that skin sensitivity tests be done always before serum is given. When the result of the test is positive, he says, the syndrome is four times as likely to appear as when it is negative; anaphylaxis is 300 times as common, and death (from all causes) 108 times. Patients with serum sickness frequently give a weak positive reaction to the Paul-Bunnell test, which is pathognomonic of infectious mononucleosis (Spark, 1942).

Rheumatic Sequelæ.

It has been pointed out by Hughes (1944) that the delayed effects of "T.A.B." vaccine and tetanus toxoid injections commonly assume the form of fibrositic pains rather than of urticaria. This also is my experience.

CASE III.—The usual local soreness lasted one day only after a "refresher" injection of "T.A.B." vaccine. Five days later swelling appeared at the site, the whole area of the deltoid was tender, and severe rheumatic pains were felt in the shoulder. Nocturnal aching was severe, abduction of the humerus was restricted, and the case was one of acute periarthritis of the shoulder. Recovery set in after a few days, and soon was complete.

CASE IV.—R.L. complained that intermittent backache came on after an injection of tetanus toxoid; after two months the pain moved to the left buttock and presented the picture of sciatica, shooting down to the calf. No motor or sensory neurological signs were found, but painful spasm of the hamstrings occurred on straight leg-raising. A fibrositic lesion was found in the centre of the *gluteus maximus*, and an injection of "Procaine" gave relief which proved lasting.

CASE V.—A.E.F. complained that aches and pains "all over" appeared at the same time as the vaccination reaction, though they possibly were due to "T.A.B." vaccine and tetanus toxoid injections administered at the same time. The patient was febrile for a few days, and for several weeks pains were felt in all the large joints; no articular swelling appeared. In ten weeks he was fit to return to duty.

Local Reactions.

A delayed reaction may appear at the site of the injection some days after the subsidence of the original soreness. It may progress no further than a localized area of induration; but in one case the whole of the upper part of the arm became red, œdematous and indurated, but not painful or tender. In another case aseptic softening occurred at the site of injection; this is the "Arthus phenomenon", which in extreme cases may proceed to massive gangrene.

Neurological Sequelæ.

In other cases, after an onset resembling the foregoing examples, the nervous system becomes involved in a special manner. The generalized pains clear up sooner or later, but the patient is left with a peripheral nerve palsy. Muscular wasting may appear, with or without patches of anæsthesia or hyperalgesia.

CASE VI.—Seaman J.C.T., of the United States Navy, had had urticaria and joint pains following an injection of anti-tetanic serum. For seven months after the serum sickness, he had felt a constant burning pain on the outer side of his left thigh; this would keep him awake at night. On examination he presented the syndrome known as *meralgia paræsthetica*, or neuritis of the external cutaneous nerve of the thigh. The skin of the outer and anterior surfaces of the lower two-thirds of the thigh was insensitive to pinprick and gave an abnormal tingling sensation on being stroked. The skin was smooth and glossy, and the pilomotor reflexes in the whole area were over-active.

In an extensive review of *meralgia paræsthetica*, Ecker and Woltman (1938) have summarized their observations on one hundred and fifty cases. In two of their cases the syndrome followed an injection in the thigh.

CASE VII.—Private P.M. complained that pain and weakness of the right arm had followed the inoculations some three months before. The pain was felt from the site of the injection (the mid-humerus) downwards, with weakness and numbness. More recently severe neuralgic pain had appeared on the right side of the face, and he felt pains in the chest. He complained of sweats and cramps, and felt ill. There was weakness of the grip of the right hand, and slight wasting of the muscles of the dorsum of the forearm was present. There was an area of hypæsthesia with loss of pain sense extending over nearly the whole of the

back of the forearm, from elbow to wrist. The pains in the head and chest were relieved by treatment of muscular lesions with "Procaine". The arm appeared to improve with physiotherapy, and no more pain occurred. Three months later there was no loss of sensation or of muscular power.

CASE VIII.—D.F.C., four hours after his second "T.A.B." vaccine injection on October 10, 1941, collapsed in the street; then he spent seven days in bed with weakness of the legs and a sore throat. During the following three months he reported sick several times with pains in the legs. On January 22, 1942, the pains were localized to his right thigh. "Novocain" injections were recommended for muscular lesions in the buttock and thigh. The injections were followed by alterations in the distribution of the pain, signifying the appearance of new lesions, which required further injections. Within three weeks the pains had eased off, but signs of nerve palsy had come on, with cutaneous anæsthesia of the whole leg, weakness of the quadriceps and calf muscles and foot-drop. Two months later the pain in the thigh returned; it now resembled "sciatica", with pain shooting down posteriorly on any attempt to stretch the hamstrings. Nocturnal aching was continuous, and weight-bearing was painful. At the same time the neurological signs improved; the muscles regained volume and cutaneous sensation returned. Very little improvement occurred between July, 1942, and May, 1943, when the patient was last seen. Then he complained of cramps and aching pains in his thigh and calf. All the muscles of the right leg were weaker than those of the left, though there was little wasting and the deep reflexes were active. A few scattered patches of cutaneous anæsthesia remained.

Occasionally one or more of the cranial nerves is affected. Taylor (1942) and Kojis reported cases of permanent deafness after serum sickness, and Bennett (1939) mentioned affections of the sight. In Case IX the optic nerves were involved.

CASE IX.—Private J.R. noticed on July 30, 1940, that his vision was deteriorating; he had received his first inoculations on July 16, 1940. Soon afterwards he was almost blind in both eyes. The left eye recovered rapidly, but the right was slower. On August 7, 1940, the oculist reported a right retrobulbar neuritis with vision less than $^6/_{36}$. On September 3, 1940, it had improved to $^6/_{36}$, and he had a central scotoma with signs of early optic atrophy. On September 13, 1940, he was discharged from the Australian Imperial Force. Now, after his discharge from the Commonwealth Military Forces, his vision is $^6/_6$ in both eyes.

CASE X.—Case X is an example of polyneuritis. The patient was in hospital for several weeks in 1941, but I lost trace of him afterwards. He had weakness and wasting of the muscles of all four limbs, with wrist-drop and foot-drop; but there was little or no sensory loss. When last seen he appeared to be making a good recovery. He attributed his condition to the "needles"; this I am not able to verify or deny.

CASE XI.—Private H.V.E. was admitted to hospital on July 22, 1941, complaining for three weeks of aches and pains all over which had commenced soon after the "needles". He had an intermittent pyrexia for six weeks, and soon developed rhonchi all over his chest and œdema of the legs. Heavy albuminuria appeared, and the body became more or less waterlogged. He became very ill, with continued orthopnœa and rattling in the chest. From the start he complained of numbness and tingling in his toes and of neuralgic pains in his left forearm with cramps in the hand. The skin of the hand became shiny and atrophic. He went downhill steadily and died on November 16, 1941. Autopsy was not performed, but on review the case appears to present the features of *periarteritis nodosa*.

Some workers regard *periarteritis nodosa* as a severe manifestation of the rheumatic process attacking the arterial system (Neale and Whitford, 1934; Poynton and Schlesinger, 1937). Eason and Carpenter (1937) reported a case of *periarteritis nodosa* due to serum sickness; and Rich (1942) of Baltimore reported several cases of serum sickness which came to post-mortem examination for various reasons, in all of which widespread lesions typical of *periarteritis nodosa* were found. In one patient who recovered from pneumonia after serum treatment and its sequelæ, biopsy of muscle showed the same lesions.

Vaccination and its Special Sequelæ.

Cutaneous Eruption.

Vaccination is the cause of various kinds of rashes and other sequelæ, and a smallpox scare in Glasgow in 1941, which resulted in the performance of a million vaccinations in Scotland, gave ample opportunities for observations (Bloch, 1942; Buchanan and Laidlaw, 1942). A generalized vaccinial eruption, with vesicles and pustules, is said to be an excessively rare complication; apparently it is dangerous, for four deaths occurred in 34 cases which followed three and a quarter million vaccinations in England during the past decade (Davidson and Davis, 1943; Jubb, 1943). In four cases I have observed a milder type of vesicular eruption; in two the eruption bore a strong resemblance to chicken-pox, and in the others the vesicles were much smaller, developing on tiny papules scattered chiefly on the trunk. In none of the four cases was the soldier ill enough to go off duty; in fact, in two instances the rash was seen quite by chance during a routine inspection. Transient eruptions of various kinds (mostly urticarial) often coincided with a febrile vaccinial reaction.

Encephalitis.

Encephalitis was first recognized as a complication of vaccination about twenty-two years ago. Its incidence can be gathered from the knowledge that seven cases (with two deaths) occurred in Glasgow after half a million vaccinations (Anderson and McKenzie, 1942). It was stated in the House of Commons in 1942 that nine deaths had followed a million vaccinations in Scotland, seven of these being due to encephalitis. For an opportunity of seeing the following patient suffering from post-vaccinial encephalitis I am indebted to Lieutenant-Colonel C. Fortune, of Perth.

CASE XII.—Severe headache with stiffness of the neck and retraction of the head came on rapidly in a soldier who had been vaccinated seventeen days before. He was irrational on admission to a military hospital in Western Australia; his reflexes were normal, but later his legs showed signs of spasticity and he developed incontinence of both urine and fæces. His cerebro-spinal fluid pressure was 240 millimetres with 30 lymphocytes per cubic millimetre. The protein in the cerebro-spinal fluid was increased. He was very ill, apparently moribund, but improved after treatment with serum from a recently vaccinated soldier. Eventually he made a perfect recovery.

Swan (1944) records the only death from this cause so far reported in Australia. Vaccination may be followed also by neurological sequelæ resembling those which follow the other prophylactic inoculations. Colman (1902) many years ago reported a case of bilateral "radiculitis" of the brachial plexus which commenced with severe pain in both shoulders 22 days after vaccination. Parkes Weber (1902) reported a case of neuritis of the lateral cutaneous nerve of the thigh, which occurred two weeks after vaccination in a man who was wearing an inguinal truss on the same side. Young and Moore (1941) saw a case of severe and intractable multiple peripheral neuritis, while Allen and Carlyle-Gall (1942) reported what seemed to be a case of severe pituitary deficiency, with mental depression, alopecia and lowered sexual powers.

In the following case, seen by me, rheumatic fever occurred as a sequel to vaccination. In Case V an illness resembling rheumatic fever occurred after combined inoculations, and on clinical grounds vaccination seemed to be responsible. In Case XIII there appeared to be little doubt of the association.

CASE XIII.—Six weeks after the vaccination of Trooper L. the sore had not healed. Then he suffered from the painful swelling of many joints, with fever and albuminuria, but no evidence of carditis. There had been no previous history of rheumatism. He made a complete recovery.

An interesting sequel of vaccination is the transient liability in some cases for the patient to give a false positive reaction to serological tests for syphilis (Lynch, Boynton and Kimball, 1941).

Functional Pathology.

The mechanism of all these reactions has puzzled research workers for many years. Kojis insists that the mechanism of anaphylaxis is the same as that of serum sickness (and therefore probably of the non-urticarial sequelæ of injections). To the clinical observer the

Maison Marnay

★ ★ ★

Brandy

A PENFOLDS WINES PRODUCTION

FELLOWS
Compound Syrup

FORMULA: Each fluid drachm contains

Strychnine Hydrochloride	Gr. 1/64
Manganese Hypophosphite	Gr. 1/8
Potassium Hypophosphite	Gr. 1/8
Sodium Hypophosphite	Gr. 1/8
Calcium Hypophosphite	Gr. 1/3
Iron Pyrophosphate	Gr. 1/8
Quinine Sulphate	Gr. 1/20

A carefully-manufactured and dependable bitter tonic which will improve muscular tone and nutrition, and provide limited respiratory and vasomotor stimulation. • A reliable compound prescribed in many countries for upwards of 60 years.

Samples on Request

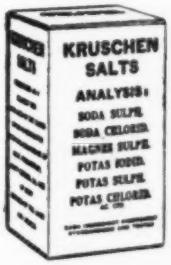
FELLOWS MEDICAL MANUFACTURING COMPANY, INC.

26 Christopher Street, New York City

Swift Correction of Intestinal Stasis

Physicians know the far-reaching consequences which result from the condition of intestinal stasis, and realize that many symptoms, including cardiac asthma, neuritis, arthritis, gouty eczema, etc., may be removed by its relief.

While many aperients will give the necessary relief to the intestinal tract, in many cases this is accompanied by unpleasant and often serious after-effects. Saline purgatives sooner or later lose their effectiveness and more severe evacuants must be resorted to.



Carefully controlled clinical tests conducted a few years ago in England established the value of a small regular dose of the simple mixture of salts in Kruschen Salts, in the prophylaxis and treatment of colon stasis and dyschezia.

Kruschen introduces healthy regularity and is neither injurious nor habit-forming.

KRUSCHEN SALTS

E. Griffiths Hughes Ltd. Established 1756.

WILLIAM R WARNER & CO. PTY. LTD.,
508-528 Riley Street, Sydney, N.S.W.

oughs, Colds, Convalescence

When colds and coughs hang on or recur frequently, when convalescence is slow and recovery incomplete, Waterbury's Compound with Creosote and Guaiacol, by its reconstructive tonic properties, aids in building up the resistant forces of the body. In one palatable preparation, the patient obtains the enzymatic products of cod liver oil, fresh liver, pancreas and spleen, predigested and made easily assimilable: iron and manganese in the form of peptonates, unfermented extract of malt, hypophosphites, wild cherry with creosote and guaiacol.

THE LONELINESS OF PAIN

The first human cry in the wilderness was to summon help for the relief of pain. To-day, the first mission of medicine is still to ease the acute discomfort of pain.

In the service of pain-relief Veganin gives unusual satisfaction. A combination of codeine, acetylsalicylic acid and phenacetin in synergistic association Veganin not only mitigates promptly the suffering from headache, migraine, neuralgia, earache and other painful conditions, but also quiets the attendant nervous symptoms without causing toxic effect.

VEGANIN

WILLIAM R. WARNER & CO. PTY. LTD., 508-528 RILEY STREET, SYDNEY, N.S.W.

differences appear to be greater than the similarities; but there is no line of demarcation between delayed cases of anaphylaxis and early serum sickness. Case VIII exemplifies the essential unity of the disorders; an anaphylactic reaction continued straight on to fibrositis in the legs, and then to nervous manifestations.

Protein split products are said to be involved, which influence the cells of the affected tissues, but of this there is no proof. In the case of urticaria, we are told, the blood vessels of the skin are the shock tissues; in the case of asthma the bronchial musculature; with neuritis the *vasa nervorum*; and so on (Bray, 1942). Any theory, however, must be inadequate which does not attempt to explain the immediate severe reactions. When a reaction comes on within a minute of the injection, this theory would necessitate that within that short space the splitting reaction should take place, the products should be absorbed and conveyed by the circulation to the shock tissues. We know that this is impossible, for it takes hypodermically injected morphine at least twenty minutes to produce its effects. The possibility cannot be denied that these reactions may be reflex in nature and conveyed through nervous channels. We know that reflex faintness and sweating can be brought on by stimulating the deep receptors in the coat of an artery; and it seems possible that the injected substances (or their split products) are capable in susceptible people of setting up a train of reflex responses.

Recent work on urticaria indicates that nervous impulses play an important part in its genesis. Grant, Pearson and Comeau (1935) found that the substance liberated in the skin resembled acetylcholine. In susceptible people they could produce widespread wealing by warming the body; but the weals would not occur in skin whose cutaneous nerve had been anæsthetized. The late Sir Thomas Lewis (1942) confirmed this observation; he concluded that an essential part of the mechanism of urticaria was the liberation in the skin, by antidromic nervous impulses, of a substance resembling acetylcholine. If, as shown, nervous impulses play a large part in the mechanism of urticarial wealing, it is credible that they play a part also in the more dangerous parallel phenomena.

Serum Sickness and Rheumatism.

There are many who hold that rheumatism is essentially an "allergic" reaction like urticaria; and indeed the evidence provided by this series suggests that there is a basic connexion between them. Garrod (1911), Llewellyn (1927), Poynton (1936) and Lichtwitz (1944) have pointed out that some of the manifestations of serum sickness are identical with those of rheumatic fever. Doyle (1932), who reviewed the nervous complications of serum sickness, observed that arthritis frequently came on at the same time as the neuritis.

Recently Rich and Gregory (1943, 1944), working on the serum disease which can be produced in rabbits, found not only widespread lesions like those of *periarteritis nodosa*, but innumerable lesions identical with Aschoff's bodies scattered throughout the heart and lungs.

Review of Literature on Post-Injection Neuritis.

Cnyrim (1894) reported the first case of a peripheral nervous complication of serum therapy. During the intervening years many cases have been reported from France, but few in English medical literature until the last decade (Kennedy, 1929; Allen, 1931; Young, 1932; Wilson and Hadden, 1932; Doyle, 1933; Brahdy, 1938; Richardson, 1942). When Bennett (1939) reviewed the subject, the total number of reported cases was seventy. He described a fairly constant clinical picture, comprising severe neuralgic pain after serum sickness, followed by the appearance of flaccid paralysis, aching pains and tenderness of the deeper structures. Cutaneous sensory loss sometimes occurred. Though no peripheral nerve was exempt, Bennett pointed out that by far the commonest involvement was that of the upper cords of the brachial plexus; muscles supplied by the fifth and sixth cervical segments were affected in the great majority of cases. The region affected does not bear a constant relation to the site of the injection. The paralysis often is of a radicular or dissociated type, without reference to any peripheral nerve or segmental distribution. Its pathology is not understood. Most writers agree that œdema of nerves or of nerve roots must be present, and some have speculated upon the possibility of the involvement of nerve cells in the cord.

Kennedy (1929) was the first to report a nervous complication of "T.A.B." vaccine (as opposed to serum therapy). Müller (1940) described three cases in the German Army, and Williams (1941) five in the British Army, though the latter writer was not certain of the ætiological relationship. Hughes (1944), in an excellent review of the subject, has pointed out the resemblance which these cases bear to the cases of paralysis of shoulder girdle muscles of unknown origin, which have been reported in large numbers from British and Dominion armies. There is a resemblance, also, to the paralytic sequelæ of intramuscular injections of sulphonamides (Messent, 1942; Elkington, 1942; Roberts, 1942). The palsy in these cases has been attributed to the direct action of the drug on the nerve itself. In some cases, however, the nerve involved was not related to the site of the injection; while in others the paralysis did not appear until several weeks after the injection. It appears likely that unknown, possibly nervous, factors are involved.

Similar cases turn up from time to time, in which localized palsies follow injury, muscular effort or infection. Zeckel (1939) reported a case of shoulder girdle palsy which followed a gluteal injection of milk. Fortunately, as pointed out by Landes (1940), such reactions are extremely uncommon following injections of diphtheria toxoid in children; he did not see a single serious reaction in more than 11,000 children.

Prognosis.

Bennett said that residual weakness was left in 20% of cases of horse serum neuritis. A consideration of Case VIII in this series suggests that the prognosis is not uniformly good.

Psychogenic Disorders.

If neurological manifestations such as these do not correspond with the known anatomy of the peripheral nervous system, the general custom is to say that they are psychogenic. Then it is said to be unwise to examine in too much detail the sensory or motor aberrations, the danger being that they will become more firmly established through suggestion. Hughes (1944) reported a case in which, though the paralysis of the shoulder girdle was acknowledged to be organic, large patches of anæsthesia on the body and the leg were called hysterical. The late Sir Arthur Hurst (1919) reported a case of post-injection palsy which he included in his celebrated hysterical collection. Earlier, Babinski and Froment (1918) had made an accurate study of a large number of cases of "ascending neuritis" which occurred in injured soldiers. The authors stoutly contended that the syndrome bore little resemblance to proven hysterical cases. Though the anæsthesia and the spreading palsies, they said, bore little relation to the peripheral nerve fields, they insisted that they must be truly organic in their nature. The term "physiopathic" was applied to these disorders, indicating the authors' belief that the patients were not psychopathic.

Summary.

1. All the commonly used prophylactic injections or inoculations may be followed by immediate or delayed reactions.

2. The transient faintness which commonly follows an injection, the evidence suggests, is not the result of nervousness but of mild anaphylaxis.

3. While urticaria commonly follows injections of horse serum after an interval, the delayed reaction after "T.A.B." vaccine and tetanus toxoid injections partakes of the nature of rheumatic pains.

XUM

4. Occasionally these complications are followed in their turn by intractable nervous sequelæ.

5. In all these disorders, it is suggested, the basic mechanism is essentially the same, deranged nervous impulses playing a part in propagating and perpetuating the disturbances.

Bibliography.

C. Allen and C. Carlyle-Gall: "A Depression-Hyposexual-Alopecia Syndrome", *British Medical Journal*, Volume II, 1942, page 67.

I. M. Allen: "Neurological Complications of Serum Treatment", *The Lancet*, Volume II, 1931, page 1128.

T. Anderson and P. McKenzie: "Post-Vaccinal Encephalitis", *The Lancet*, Volume II, 1942, page 667.

J. Babinski and J. Froment: "Hysteria or Pithiatism", 1918.

H. C. Bazett and B. McGlone: "Note on the Pain Sensations which Accompany Deep Punctures", *Brain*, Volume LI, 1928, page 18.

A. E. Bennett: "Horse-Serum Neuritis", *The Journal of the American Medical Association*, Volume CXII, 1939, page 590.

E. Bloch: "Post-Vaccinal Eruptions", *The Lancet*, Volume II, 1942, page 504.

W. F. Bowers and L. Shupe: "Acute Appendicitis: Sequel of Typhoid Inoculation", *Military Surgeon*, Volume XC, 1942, page 413.

J. S. K. Boyd: "Active Immunization Against Tetanus", *Journal of the Royal Army Medical Corps*, Volume LXX, 1938, page 289. (Quoted by Whittingham.)

L. Brahdy: "Musculo-Spinal Paralysis after Serum Injection (Recurring after Second Injection)", *Annals of Internal Medicine*, Volume XI, 1938, page 1911.

W. R. Brain: "Recent Experience of Encephalomyelitis and Allied Conditions", *Proceedings of the Royal Society of Medicine*, Volume XXXVI, April, 1943, page 319.

G. W. Bray: "The Allergic Aspects of Urticaria and Angioneurotic Œdema", *Post-Graduate Medical Journal*, Volume XVIII, 1942, page 112.

J. Brownlee: "Is There a Seasonal Periodicity in Serum Rashes?", *The Lancet*, Volume II, 1925, page 205.

G. Buchanan and S. Laidlaw: "Vaccination in Glasgow Docks", *British Medical Journal*, Volume II, 1942, page 394.

P. F. Cardinale: "Possible Late Complications of Anaphylactic Reaction", *The Journal of the American Medical Association*, Volume CXXI, 1943, page 1185.

V. Cnyrim: *"Zwei Fälle von Erkrankung nach Anwendung des Diphtherieheilserums"*, *Deutsche medizinische Wochenschrift*, Volume XX, 1894, page 898. (Quoted by Kojis.)

W. S. Colman: "Case of Symmetrical Paralysis of Acute Onset Involving the Deltoid and other Muscles round the Shoulder Joint", *Brain*, Volume XXV, 1902, page 352.

R. A. Cooke: "Studies in Specific Hypersensitiveness: Constitutional Reactions: Dangers of Diagnostic Test and Therapeutic Injections of Allergens", *Journal of Immunology*, Volume VII, 1922, page 119.

A. A. Cunningham: "Anaphylaxis after Injection of Tetanus Toxoid", *British Medical Journal*, Volume II, 1940, page 522.

L. S. P. Davidson and L. J. Davis: "Generalized Vaccinal Reactions in Allergic Subjects", *The Lancet*, Volume II, 1943, page 103.

J. B. Doyle: "Neurologic Complications of Serum Sickness", *The American Journal of the Medical Sciences*, Volume CLXXXV, 1933, page 484.

J. Eason and G. Carpenter: "Treatment of Acute Rheumatic Polyarthritis with Concentrated Antiscarlatinal Serum", *The Quarterly Journal of Medicine*, Volume VI, 1937, page 93.

A. D. Ecker and H. W. Woltman: "Meralgia Paræsthetica: A Report of 150 Cases", *The Journal of the American Medical Association*, Volume CX, 1938, page 1650.

W. M. Edwards: "Anaphylaxis after Injection of Tetanus Toxoid", *Journal of Allergy*, Volume XIV, 1943, page 552.

J. St. C. Elkington: "Peripheral Nerve Palsies following Intramuscular Injections of Sulphonamides", *The Lancet*, Volume II, 1942, page 425.

R. Ferguson: "Case of Fatal Serum Reaction", *Canadian Medical Association Journal*, Volume XLIII, 1940, page 469.

R. A. Fox: "Disseminated Lupus Erythematosus: An Allergic Disease", *Archives of Pathology*, Volume XXXVI, 1943, page 311.

A. E. Garrod: "On the Nature of the Connexion between Erythemata and Lesions of Joints", *The Lancet*, Volume I, 1911, page 1411.

R. T. Grant, R. S. B. Pearson and W. J. Comeau: "Observations on the Urticaria Provoked by Emotion, by Exercise and by Warming the Body", *Clinical Science*, Volume II, 1935-1936, page 253.

R. R. Hughes: "Neurological Complications of Serum and Vaccine Therapy", *The Lancet*, Volume II, 1944, page 464.

E. L. Hunt: "Death from Allergic Shock", *The New England Journal of Medicine*, Volume CCXXVIII, 1943, page 502.

A. J. Jex-Blake: "Bee-Stings in Kenya Colony", *British Medical Journal*, Volume II, 1942, page 241.

A. A. Jubb: "Generalized Vaccinia", *British Medical Journal*, Volume I, 1943, page 91.

E. E. Kattiwinkel: "Hypersensitivity to Insect-Bites", *The Journal of the American Medical Association*, Volume CXX, 1942, page 871.

H. L. Keim and R. F. Wakefield: "Flaccid Paraplegia following the Diagnostic Use of Frei Antigen", *Archives of Dermatology and Syphilology*, Volume XL, 1939, page 709.

F. Kennedy: "Certain Nervous Complications following Use of Therapeutic and Prophylactic Sera", *The American Journal of the Medical Sciences*, Volume CLXXVII, 1929, page 55.

F. G. Kojis: "Serum Sickness and Anaphylaxis: Analysis of Cases of 6,211 Patients Treated with Horse-Serum for Various Infections", *American Journal of Diseases of Children*, Volume LXIV, 1942, pages 93 and 313.

R. W. Lamson: "Sudden Death Associated with Foreign Substances", *The Journal of the American Medical Association*, Volume LXXXII, 1924, page 1091.

J. H. Landes: "Infrequency of Toxoid Reactions in 11,326 School Children", *New York State Journal of Medicine*, Volume XL, 1940, page 1594.

T. Lewis: "Observations on Vascular Axon-Reflex in Human Skin, as Exhibited by a Case of Urticaria, with Remarks on the Nocifensor Nerve Hypothesis", *Clinical Science*, Volume IV, 1942, page 365.

L. Lichtwitz: "The Pathology and Therapy of Rheumatic Fever", 1944.

R. L. J. Llewellyn: "Aspects of Rheumatism and Gout: Their Pathogeny, Prevention and Control", 1927.

F. W. Lynch, R. E. Boynton and A. C. Kimball: "False Positive Serological Reactions for Syphilis due to Smallpox Vaccinations (Vaccinia)", *The Journal of the American Medical Association*, Volume CXVII, 1941, page 591.

P. S. Messent: "Neuritis due to Intramuscular Injection of 'Dagenan'", THE MEDICAL JOURNAL OF AUSTRALIA, Volume II, 1942, page 308.

K. H. Müller: *"Komplikationen seitens des Nervensystems nach Typhusschutzimpfungen"*, *Deutsche medizinische Wochenschrift*, Volume LXVI, 1940, page 1208. (Abstracted in the *Bulletin of War Medicine*, Volume II, 1942.)

A. V. Neale and A. G. Whitford: "Rheumatism and its Relation to Arterial Disease and Periarteritis Nodosa", *British Medical Journal*, Volume II, 1934, page 104.

H. J. Parish and C. L. Oakley: "Anaphylaxis after Injection of Tetanus Toxoid", *British Medical Journal*, Volume I, 1940, page 294.

F. J. Poynton: "The Harben Lectures: Juvenile Rheumatism", *Journal of State Medicine*, Volume XLIV, 1936, page 621.

F. M. Rackeman: "Serum Reactions, with Special Reference to the Prevention and Treatment of Tetanus", *The New England Journal of Medicine*, Volume CCXXVI, 1942, page 726.

A. R. Rich: "Role of Hypersensitivity in Periarteritis Nodosa as Indicated by Seven Cases Developing during Serum Sickness and Sulphonamide Therapy", *Bulletin of the Johns Hopkins Hospital*, Volume LXXI, 1942, page 123.

A. R. Rich and J. E. Gregory: "The Experimental Demonstration that Periarteritis Nodosa is a Manifestation of Hypersensitivity", *Bulletin of the Johns Hopkins Hospital*, Volume LXXII, 1943, page 65.

A. R. Rich and J. E. Gregory: "Further Experimental Cardiac Lesions of the Rheumatic Type Produced by Anaphylactic Hypersensitivity", *Bulletin of the Johns Hopkins Hospital*, Volume LXXV, 1944, page 115.

J. S. Richardson: "Serratus Magnus Palsy", *The Lancet*, Volume I, 1942, page 618.

N. Roberts: "Palsy and Intramuscular Sulphonamide", *The Lancet*, Volume II, 1942, page 498.

H. F. Robertson and F. Varmus: "Report of Case of Peripheral Neuritis with Hypertension following Serum Therapy", *Military Surgeon*, Volume XCV, 1944, page 129.

E. H. Spark: "Infectious Mononucleosis", THE MEDICAL JOURNAL OF AUSTRALIA, Volume II, 1942, page 413.

M. B. Sulzberger: "Chronic Urticaria following a Single Injection of Tetanus Toxoid", *United States Naval Medical Bulletin*, Volume XL, 1943, page 415.

C. Swan: "A Case of Encephalomyelitis following Vaccination", THE MEDICAL JOURNAL OF AUSTRALIA, Volume I, 1944, page 152.

H. M. Taylor: "Neurological Complications of Serum Sickness, with Special Reference to the Ear", *The Laryngoscope*, Volume LII, 1942, page 923.

P. L. Turner and T. W. Clarke: "Temporomandibular Arthropathy in Serum Sickness", *Annals of Allergy*, Volume I, 1943, page 115.

G. H. Wadsworth and C. H. Brown: "Serum Reaction Complicated by Acute Carditis", *Journal of Pediatrics*, Volume XVII, 1940, page 801.

D. Waterston: "On Pain", *The Lancet*, Volume I, 1933, page 943.

F. Parkes Weber: "Case of Meralgia Paræsthetica after Vaccination", *Brain*, Volume XXV, 1902, page 353.

H. E. Whittingham: "Anaphylaxis following Administration of Tetanus Toxoid", *British Medical Journal*, Volume I, 1940, page 292.

D. Williams: "Epidemic Myositis with Neuritis, Erythema and Meningeal Symptoms", *The Quarterly Journal of Medicine*, Volume X, 1941, page 283.

F. Young: "Peripheral Nerve Paralyses following the Use of Various Serums: Report of a Case and Review of the Literature", *The Journal of the American Medical Association*, Volume XCVIII, 1932, page 1139.

R. H. Young and C. Moore: "Post-Vaccinal Neuronitis: Report of a Case", *Journal of Pediatrics*, Volume XVIII, 1941, page 248.

M. A. Zeckel: *"Nevrite de la partie dorsale du plexus brachial à la suite d'une injection de lait"*, *Revue neurologique*, Volume LXXI, 1939, page 459.

Reports of Cases.

HERNIA THROUGH THE FORAMEN OF WINSLOW EMERGING THROUGH THE GASTRO-HEPATIC OMENTUM.

By IAN HAMILTON,
Temporary Honorary Surgeon, Royal Adelaide Hospital,
and
J. E. S. HARDY,
Adelaide.

Clinical Record.

W.S., aged twenty-nine years, a fitter, was admitted to the Royal Adelaide Hospital at 3.15 a.m. on the morning of October 21, 1944, with the following history. Nine hours previously, immediately after his tea, which had been "a good one", while he was still sitting at the table, he had been seized by an acute aching pain just above his umbilicus. This pain had continued in spasms lasting for a few seconds, recurring every few minutes and making him want to roll about; it had not radiated from its original site. He had vomited three times since the onset of this pain—one hour, four hours and six hours afterwards. There had been no blood in the vomited material, and vomiting had relieved the pain for about ten minutes. His bowels had last been opened on the morning of the day of this attack, and had not acted after the attack. He had not had diarrhœa and there was no history of indigestion; he had been in good health until this attack occurred. He had had no frequency of micturition or dysuria since the pain commenced.

On examination, he was in severe distress, rolling in agony for about a minute every few minutes. His temperature was 98·4° F., his respirations numbered 18 per minute, and his pulse rate was 52 per minute. He showed no abnormal signs other than a slightly furred tongue and distinct localized tenderness in the mid-line midway between the umbilicus and xiphoid. No distension was present, no mass was palpable, and no tenderness was elicited on rectal examination. He was given one-sixth of a grain of morphine and was nursed in Fowler's position. Every two hours he was given two ounces of milk, alternating with two ounces of "Benger's Food", magnesium trisilicate powders being given with alternate feeds, and his pulse rate was recorded every half-hour. The tentative diagnosis by the resident medical staff was of acute peptic ulcer; that of the referring doctor was "ruptured ulcer".

When the patient was examined seven hours later (that is, sixteen hours after the onset of his pain), the pain had changed in character and the signs had altered. He had no violent attacks; the pain was much less colicky, but was more dull and aching. His pulse rate had risen from 52 to 64 per minute and his temperature to 99·8° F. He had not vomited or felt pauseated since his admission to hospital and he had not had hiccup. His abdomen was then moving slightly with respiration and was generally tense although not definitely distended, and fullness was present in the left hypochondriac area. No mass was palpable, and there was no tenderness or muscle guarding except in a localized area in the epigastrium just off the left costal margin, about two and a half inches from the xiphoid process, where acute tenderness was present. No tenderness was elicited on rectal examination. The psoas test produced a positive result on the right side. The obturator tests gave negative results. His urine contained traces of sugar and acetone. An X-ray examination at this stage revealed some gas distension of the stomach and the distal part of the colon.

Diagnosis.

An evaluation of the type of pain at onset coupled with the lack of history of previous pain made the original diagnosis of acute ruptured ulcer most unlikely. The clinical picture produced by ulcers which rupture into the peritoneal cavity is usually characteristic, and this case did not resemble it. Ulcers which rupture locally or leak slowly into the peritoneal cavity do not produce colicky pain, and the patient can frequently indicate with a finger-tip where the pain is. On the other hand, the onset of sudden colicky pain in spasms suggested that an obstruction was present in a hollow, muscular viscus which was undergoing peristalsis. This could be the bile duct, a ureter, the appendix or the small intestine. The pain of biliary colic is usually right-sided and radiates through to the back, and in most cases there is a history of previous cholecystitis, if not of a previous attack of similar pain. Appendiceal colic is associated usually with a lower mid-line pain than this patient had, with signs in, and a shift of pain to, the right iliac fossa. The characteristic radiation of ureteric colic was likewise absent. Obstruction in the small bowel alone had less grounds upon which to be excluded. Sudden obstruction of the lower part of the small bowel is accompanied by the sudden onset of colicky pain, shock and later vomiting, and fæcal vomiting with distension comes on after some time. Upper small bowel obstruction is accompanied by pain and shock and is soon followed by vomiting. The duodenum may be suddenly occluded by spasm and œdema around a cicatrizing ulcer; but in such cases everything taken by mouth is returned, and this patient, after the initial vomiting, had taken 12 ounces of fluid without further vomiting. The early vomiting present in this case (which was reflex vomiting from the pain and emptied his stomach) may be distinguished from any expected vomiting of intestinal secretions and bile due to the obstruction. This patient was not suffering severely from shock when first examined, and later was only moderately so; and the lower the obstruction, the less severe is the shock, according to standard descriptions of such cases. Thus it seemed likely that he had an obstruction to his small bowel, probably in the ileum. The change in the pain to a more continuous, less colicky manifestation indicated either that a localized patch of peritoneal irritation was developing or that the bowel had become strangulated, or both. Strangulation causes cessation of peristalsis followed by distension, and the overlying area becomes rigid and tender. The obstruction could have been due to foreign bodies, bands or masses in the wall or outside the wall, or to strangulation of an internal hernia. It was considered that the most likely explanation was that an internal hernia had occurred and had become strangulated.

Operation.

At 2.30 p.m. on October 21, 1944, twenty-one hours after the onset, after premedication with one-sixth of a grain of morphine and one one-hundredth of a grain of atropine, operation was undertaken. "Metycaine" spinal anæsthesia was used, 1·8 mils of solution being injected; this was for the following reasons: (i) to avoid the risk of inhalation of vomitus, which is apt to occur in intestinal obstruction and is particularly dangerous; (ii) to obviate the necessity for turning the patient on his face, which may cause rupture of distended viscera; the use of a hyperbaric spinal anæsthetic agent avoids this manœuvre.

A right-sided upper abdominal paramedian incision, displacing the rectus laterally, was employed. This incision was chosen so that the duodenum and bile ducts would be more accessible if they were involved. The posterior sheath and the peritoneum were opened in the line of the incision. Immediately coils of dark blue, distended small gut could be seen, and a considerable amount of hæmorrhagic serous effusion continued to well into the wound. This was removed by continuous use of the sucker. The incision was enlarged downwards to the level of the umbilicus, and more distended bowel became apparent. The distended loops were traced upward and downward, and it became obvious that both limits of the bowel disappeared upward between the stomach and liver. On further investigation it was discovered that the coils passed through a rent in the lesser omentum into the lesser sac. With retractors and packs the foramen of Winslow was sought, and it was discovered that two coils

of gut passed through the opening. Attempts to reduce these failed at first, but after digital dilatation of the foramen the gut could be extricated from the lesser sac and returned to its rightful position. About three and a half feet of small bowel had been involved, extending downwards from about three feet from the duodeno-jejunal flexure. Both afferent and efferent loops were constricted at the foramen. The congested gut was delivered and wrapped in moist, warm, saline packs, and the lesser omentum was inspected. An oval hole about two and a half inches by one and a half inches was seen. This was sutured with catgut. By this time the small bowel had lost its dark blue appearance and become dark red, and had recovered a good deal of its tone. It was returned to the abdomen and the wound was sutured in layers. The patient was returned to bed with a pulse rate of 76 per minute and respiration rate of 18 per minute, and his temperature was then 99° F. He was given 20 ounces of saline solution by rectum and was allowed sips of water. He was also permitted to have one-sixth of a grain of morphine every four hours if he was in sufficient distress to warrant it.

Post-Operative Progress and Treatment.

In the twenty-four hours after operation this patient was most uncomfortable. His abdominal distension increased and his pulse rate rose to 130 or 140 beats per minute. Paralytic retention of urine developed, and his bladder had to be catheterized. He was taking very little fluid, and so an intravenous drip administration was begun. Hæmorrhage began in the wound, and a large hæmatoma formed under its upper end. In the succeeding two days his general condition improved. The pulse rate dropped to about 90 beats per minute and the distension decreased a little. He passed a little flatus on the second day after operation. His bladder had to be catheterized, and he was still having one-sixth of a grain of morphine occasionally. In this respect the recent article of Puestow[(2)] entitled "Clinical and Experimental Studies of Intestinal Motility and Post-Operative Distension" is interesting. Puestow studied the effects of various drugs used clinically upon the motility of loops of bowel exteriorized in colostomies and ileostomies, and reported that opiates, "Physostigmine", "Prostigmine", methyl sulphate and choline derivatives stimulated the motility of the small bowel and inhibited that of the colon, whereas posterior pituitary extract and pitressin had the opposite effect. Morphine administered in doses of one-sixth of a grain hypodermically produced its muscular effects in five to fifteen minutes, and there was no secondary diminution later. Of all drugs used, morphine in clinical doses stimulated the small bowel and inhibited the colon most of all. Puestow considers that post-operative distension may be due to the use of morphine. In the present case the patient passed a little flatus on the second and third days after operation, and on the third day his bowels acted, seven days after his last injection of morphine. At that time he was given another one-sixth of a grain and one mil of "Carbachol"; fourteen hours later his bowels acted, and they acted again three hours later. He was given no more morphine, and in the succeeding twenty-four hours his bowels acted five times, and in the next twenty-four hours seven times. The fæces were soft and contained much mucus. On rectal examination no abnormality could be felt. His temperature was normal by day, with an evening rise to 100° F. for eight days. On the ninth day it rose to 101° F., and again on the following night, and the rise was maintained throughout the eleventh day. During the week he was unable to void his urine properly, and on the fifth day he voided it by overflow incontinence, and an indwelling catheter was inserted. This was retained for four days; on the day of its removal his temperature rose as stated above. After its removal he did not void urine well and again became uncomfortable. "Carbachol" had some effect, and he voided 23 ounces. On the seventh day he was given a glycerin and oil enema. This was repeated on the tenth day and on both occasions produced good results. After his temperature rose on the ninth day, the right side of his scrotum became swollen, tender and red, and it was found that he had a right-sided epididymo-orchitis; rectal examination revealed some fullness in the pouch of Douglas. The patient was prone to attacks of functional hyperpnœa associated with an increased pulse rate and the complaint of peculiar sensations. Examination of his heart, lungs and blood pressure revealed no abnormality. No pelvic collection developed. He received a fluid diet after his operation, with the later addition of mashed potato, custard, jelly and soft mashed vegetables. He was given two courses of sulphadiazine for cystitis and epididymo-orchitis, and was discharged from hospital, well, on November 20. He reported back nine days later, well except for some pyuria. A fortnight later he was examined again and was quite well. He later returned to work and has continued in good health.

Discussion.

The last such recorded case occurred in England and was reported by Edwards and Stewart[(1)] in 1943. Their patient was also a young man, a guardsman, aged twenty-six years, with a history of dull, aching, non-radiating pain in the upper part of the abdomen, of only eight hours' duration. He had vomited once, two hours after the onset, and he had had similar attacks. When he was first examined, his pulse rate was 64 per minute, his respirations numbered 21 per minute, and his temperature was 98° F. A diagnosis of gastric ulcer was made, and he was treated accordingly. Shock and peritonitis set in and at laparotomy under local anæsthesia with nitrous oxide and oxygen, small bowel was found—it is not stated how much—in the same situation as in this case, but it was gangrenous. The patient died on the operating table. In discussing this case, Edwards and Stewart state that since 1910 there have been 29 cases of internal hernia at the Mayo Clinic, only one of which was into the lesser sac. They point out, using Cunningham as their authority, that in life the edges of the foramen are in contact. They also quote Moynihan and Dobson,[(3)] who stated that herniation through the foramen of Winslow occurred only if one or more of the following four conditions were present: (i) a common mesentery to the whole intestine, (ii) absence of secondary fusion of the ascending colon, (iii) an abnormally large foramen, (iv) an abnormally long mesentery with considerable mobility. Another point of interest made by Edwards and Stewart was the fact that in their case such an unexpectedly slow pulse rate was present—64 per minute. They state that this occurred in "Rendle Short's[(3)] case" also (although Rendle Short presents no new case of Winslow herniation in the reference given), and suggest that it may be due to the close association between the nerve supply of the heart and the part of the omentum torn by the second herniation. They consulted Professor Blair about the hole in the mesentery, and he considered it "acquired", since he could find no reason for it to be congenital. Since their patient died, they were able to discover that he had possessed a well-developed hepato-duodenal fold, and they point out how this, with the lesser omentum, acts as a funnel leading up to the foramen.

Chesterman,[(4)] in 1941, reporting a "unique case of hernia" (which was of the lower part of the ileum beneath a Jackson's membrane), mentions that he had encountered a case of herniation through the foramen (he also states that he was unable to trace a similar accident as the Jackson's membrane hernia).

In 1939 Silverstone[(5)] encountered a case such as ours, in which a leaking gastric ulcer was diagnosed, and in which at operation two feet of ileum were found in the same predicament as in our case. The portion of bowel was gangrenous but reduceable. Silverstone resected the gangrenous gut and laterally anastomosed the free ends, but the patient died two days later. He analyses the acute cases into two groups, those in which acute obstruction occurs suddenly, and those in which symptoms of chronic indigestion have been present for years. Stewart's[(1)] case would now fall into Silverstone's second group, and the present case into his first group. Silverstone also states that small bowel has been found in this situation twice

as often as large bowel, and that pain and vomiting are the main symptoms, although in McKenzie and Woods's[6] case vomiting was absent.

In 1925 Rock Carling and Smith[7] published an account of a case exactly similar to ours, even to the pre-operative diagnosis of gastric ulcer. In their case the middle twenty inches of ileum were involved. The herniation was reduced and the patient lived. Rendle Short[3] in 1924 surveyed 24 cases recorded until then. At that stage eighteen patients had been operated upon, and of these seven had survived. Rendle Short quotes Souttar as stating that the condition is rare and when it occurs is almost invariably fatal. Many writers had mentioned Treves's[8] case. It occurred in 1888, and is interesting, since in this case the ileum, caecum, ascending colon and part of the transverse colon were all packed through the foramen and had burst the lesser omentum (as is not surprising), and it was the first case of this type in which a laparotomy was performed. The patient was a young man, aged twenty-six years, who had "eaten a very hearty dinner at 3 p.m., concluding the meal with a considerable number of periwinkles. . . . At 5 p.m. he was suddenly seized with violent abdominal pain, like cramp, and was situate about and above the umbilicus". The pain was intermittent, but the intervals were short, and he was rolling about with pain most of the time. This patient was examined after two days in this condition, when he was feeling better, although his abdomen was somewhat distended. The description of his pre-operative progress covers a period of a week, at the end of which time the author and Sir Astley Cooper both agreed that there was "acute abdominal trouble". At this stage the patient's face was sunken, his eyes were bright, his tongue was dry and cracked with fur, and his abdomen was distended and tympanitic. Treves and McKenzie, after a masterly analysis, decided that the colon was completely obstructed. Laparotomy was performed through a lower abdominal mid-line incision. The patient did not survive. By palpation Treves ascertained during the operation what had occurred, and he states that he did not attempt to enlarge the foramen, since "even modern abdominal surgery has not proved that the hepatic artery, the portal vein and the bile duct can be divided simultaneously with impunity". This case was reported as a lecture, in which he again tilted at the innovations he had seen: "There are still forms of hernia which are beyond the reach of the much vaunted surgery of the time." He mentions four cases, three occurring respectively in 1842, 1834 and 1884, and one undated.

In arriving at the number of these cases free use has been made of the excellent articles of Rendle Short,[3] Ullman[9] and Silverstone.[5] Twenty years ago a great deal was being published on this subject, reviews and new cases appearing within months of each other. It can be seen now that between them the first two writers collected 32 cases. About the same time McKenzie and Wood,[6] and Rock Carling and Smith, published accounts of cases. In 1927 Dewis and Miller[10] reported a case, together with two others they had traced, and reviewed the symptoms present in these and all previous cases collectively. Silverstone,[5] in 1939, mentioned seventeen new cases and described his own. Since then cases have been reported by Mitchell, by Chesterman[4] and by Edwards and Stewart,[1] and probably by Dariau[12] and Meusberger[13] as well. If these last two are reports of cases, then the present case is the sixty-first reported of herniation through the foramen of Winslow, and the sixth of these complicated by secondary rupture of the lesser omentum.

References.

(1) H. Edwards and W. Stewart: "Hernia through Foramen of Winslow, Emerging through Gastro-hepatic Omentum", *British Medical Journal*, Volume I, 1943, page 343.

(2) B. J. A. Moynihan and J. F. Dobson: "Retroperitoneal Hernia", Second Edition.

(3) A. Rendle Short: "On Retroperitoneal Hernia: With a Report on the Literature", *The British Journal of Surgery*, Volume XII, 1924-1925, page 456.

(4) J. F. Chesterman: "Unique Internal Hernia", *The British Journal of Surgery*, Volume XXIX, 1941-1942, page 278.

(5) M. Silverstone: "Hernia through Foramen of Winslow", *The Lancet*, Volume II, 1939, page 786.

(6) W. J. McKenzie and D. Wood: "Strangulated Hernia through the Foramen of Winslow", *The British Journal of Surgery*, Volume XII, 1924-1925, page 613.

(7) E. R. Carling and A. T. Smith: "Hernia through the Foramen of Winslow: Secondary Rupture through the Gastro-Hepatic Omentum", *The British Journal of Surgery*, Volume XIII, 1925-1926, page 585.

(8) F. Treves: *The Lancet*, Volume II, 1888, page 701.

(9) A. Ullman: "Hernia through the Foramen of Winslow", *Surgery, Gynecology and Obstetrics*, Volume XXXVIII, 1924, page 225.

(10) J. W. Dewis and R. H. Miller: "Hernia through the Foramen of Winslow: The Report of a Case with Reference to Thirty-Three other Cases Collected from the Literature", *Surgery, Gynecology and Obstetrics*, Volume XLV, 1927, page 95.

(11) G. F. Mitchell: "Acute Intestinal Obstruction in a Baby Fifteen Months Old: Hernia through the Foramen of Winslow", *The British Journal of Surgery*, Volume XXVI, 1938-1939, page 648.

(12) E. A. Dariau: "*Etranglement interne dans l'hiatus de Winslow*", *Gazette des hôpitaux civils et militaires*, Volume CXII, 1939, page 393.

(13) A. Meusberger: "*Akute Darmeinklemmung im Foramen Winslovii*", *Zentralblatt für Chirurgie*, Volume LXVII, 1940, page 1880.

(14) C. B. Puestow: "Intestinal Motility and Postoperative Distension: Experimental and Clinical Studies", *The Journal of the American Medical Association*, Volume CXX, 1942, page 903.

Reviews.

NON-DIRECTIVE COUNSELLING.

THE purpose of "Personality Factors in Counseling", by Charles A. Curran, is to determine by objective analysis the factors which go into the process of therapy and the functions of the personality which bring about this process.[1] The form of therapy with which the author is concerned is described as non-directive counselling, and his analysis of this form of treatment is based upon the phonographically recorded interviews with an adolescent male student who suffered from difficulties in adjusting himself to the social and academic life of his school.

In non-directive counselling the counsellor adopts a passive and understanding attitude, and while encouraging the patient to talk freely, does not control or interpret the material produced by him. The substance of the book is concerned with a technical analysis of the material produced during twenty interviews with the patient. The final chapter is devoted to a discussion of the nature of maladjustment and of the process of readjustment.

This book is directed more to pedagogues and psychologists than to physicians engaged in psychotherapy.

X-RAY DIAGNOSIS IN PÆDIATRICS.

THE gamut of pædiatric radiodiagnosis is now so wide, every journal bristling with fresh references, that the stoutest heart might well quail at a request to collect and examine this wealth of material in one volume. However, Dr. John Caffey, associate pædiatrician and Röntgenologist at the Babies' Hospital and Vanderbilt Clinic, New York, has attempted and carried out the project with success.[2] "Pediatric X-Ray Diagnosis" is really an epoch-making book, for it is a long thirty-five years since the only book of similar title written in English appeared from the pen of Thomas Rotch, Harvard professor of pædiatrics. Rotch, an outstanding pædiatrician of his time, did a valuable work in stressing the importance of mastering the radiologically normal, but much has developed since his pioneer treatise. The Potter-Bucky diaphragm, duplitized films, fluorescent screens, rotating anode tube and impulse timer were the stuff of which dreams were made before the first world war, and probably many candidates for the present-day diplomas of diagnostic radiology have never even heard of Rotch, nor seen his work with its 264 illustrations of X-ray plates—and remarkably good they were. Caffey, as did Rotch, correlates

[1] "Personality Factors in Counseling", by Charles A. Curran, Ph.D., preface by Michael J. Ready, introduction by Carl R. Rogers; 1945. New York: Grune and Stratton. 8¼" x 5¼", pp. 310, with 71 illustrations. Price: $4.00.

[2] "Pediatric X-Ray Diagnosis: A Textbook for Students and Practitioners of Pediatrics, Surgery and Radiology", by John Caffey, A.B., M.D.; 1945. Chicago: The Year Book Publishers, Incorporated. 10" x 6¾", pp. 860, with many illustrations. Price: $12.50.

the radiological appearances with the clinical findings, and the limitations and pitfalls are constantly brought under attention.

There are six sections in the volume, the first being allotted to the head and neck, in which is an illuminating chapter of over thirty pages on intracranial pneumography, now regarded as indispensable in neurological diagnosis. Caffey believes that encephalography can be carried out satisfactorily by anyone capable of passing a lumbar puncture needle, and at the Babies' Hospital, New York, the procedure is left to resident medical officers employing "Avertin" anæsthesia. The author states that, as our knowledge of the anatomy of the ventricular and subarachnoid spaces has been derived, not from encephalograms of normal infants, but from necropsy studies, the present-day standards of the normal at different age periods are accurate only within limits, and that caution must therefore be exercised in the interpretation of slight changes as abnormal. In that important group of diseases—the congenital mental deficiencies, with or without spastic paralysis—the limitations, and even the futility, of encephalography (regarded by the author as always a potentially dangerous procedure) is emphasized.

The section on the thorax is the largest and is well written. The association of upper respiratory infection and chronic bronchitis has led, during the past decade or two, to the term broncho-sinusitis becoming a popular diagnosis. The author shows why caution should be exercised in making such a report from X-ray films alone. In 1940 Marsh and Washburn contributed important observations on the lack of correlation between the size of the hilar and broncho-vascular shadows and the incidence of sinusitic infection; they showed that the normal range and density of the hilar and broncho-vascular shadows is much greater than is sometimes believed, and that there is no parallelism between the frequency of sinusitis and the presence of large hilar shadows and heavy pulmonary markings; the size of the shadows appeared to be fixed in the first weeks of life and bore no constant relationship to the frequency and severity of upper respiratory infection. This is another reason why it is premature to throw the stethoscope into the discard. The work of Leonard Findlay and of Fleischner on the reversibility of bronchiectasis associated with atelectasis is described as being worth remembering when lobectomy is mooted; bronchiectasis can be impermanent, a second bronchography some months later showing that the bronchial tree has returned to normal. Caffey considers congenital cystic lung a rare condition, as no cases have been found at necropsy in fifty years at the Babies' Hospital; he suggests that many cases radiographically suggestive of congenital cysts are probably examples of acquired emphysematous cavities (blebs or bullæ) caused by valvular bronchial obstruction. The thymus, for long a whipping boy of pædiatrics, is examined by Caffey and discharged practically with a stainless character. The bad old days of X-ray diagnosis contributed much to the chimera of its wicked enlargement, though for years now radiologists—in this country as well as in America—have spoken and written that the X-ray diagnosis should be made with great reservation. In the past, error has arisen largely from lack of appreciation of the radiographic importance of the respiratory phase and the position of the patient; in the author's experience there has been little correlation between the size of the thymic shadow and the presence of the clinical signs of so-called thymic pressure. This gland, having been defamed pathologically as well as radiologically for so many years, might well be given its *congé*. In some quarters chest fluoroscopy is held of little account, but its value in the examination of children as an adjuvant to several films in different planes and postures is maintained. Throughout the work the author shows the soundness of his judgement by indicating there is little merit in rushed or cheap radiological investigation; it might have been added that immediate diagnosis from wet films too often does scant justice to a carefully planned radiographic technique. The subsection on congenital heart disease can be read with profit, and may result in some forbearance to the radiologist, who, anxious to help his clinical colleague whilst preserving his own intellectual honesty, is reluctant to dogmatize on the presence of an uncomplicated *ductus arteriosus*. Caffey shows that the radiological evidence of the presence of Botallo's duct is often far from decisive.

Bone diseases claim the last two sections. That type of generalized osteochondral dystrophy associated with the name of Morquio, of Uruguay, properly receives an adequate description, for it stands intermediate between achondroplasia (for which the author prefers the term chondrodystrophy) and the larger but less defined groups of bone and cartilaginous dysplasias. Eponymous nomenclature is used freely throughout the work, and Caffey does not confess that it causes him any bedevilment.

The text and illustrations (over 700 of these) occupy 800 pages, and the reproductions of films, with their informative legends, call for special praise. Few radiologists and pædiatricians will remain long without recourse to this valuable work, and through its wise counsel, fewer errors in radiodiagnosis will assuredly be made. The reader is left with the strengthened conviction that radiodiagnosis must always remain as personal an exercise—experience and wisdom playing equal parts with knowledge, both radiological and clinical—as is pathology. To state that X-ray examination revealed this or that condition, without specifying by whom the interpretation was made, is akin to averring that microscopy revealed "chronic inflammation, and not neoplasm", without naming the examining pathologist.

One of this volume's many satisfying features is the particularly comprehensive bibliography following each chapter and subchapter; references almost to the date of publication have been included, and American, British and European sources receive well-distributed recognition.

The format of the volume is due to the Year Book Publishers, of Chicago, and, as is usual with this firm, its work is of the first class.

OPERATIVE ORTHOPÆDIC SURGERY.

T. NICOLA, believing with the Chinese that "one picture is worth ten thousand words", offers in "Atlas of Surgical Approaches to Bones and Joints" a book made up almost entirely of original drawings.[1] The drawings, which are large and clear, occupy most of each page, at the bottom of which the various stages of exposure are concisely enumerated.

As is common with original drawings, there is a tendency to a loss of proportion which makes the drawings rather diagrammatic. This facilitates a quick understanding of the various stages of an exposure, but is likely to be misleading in practical procedures. The author does not attempt to discuss surgical technique.

On page 10 the illustration of the conoid and trapezoid constituents of the coraco-clavicular ligament is too inaccurate to be accepted even in a diagram.

In the description of a postero-lateral approach (Henderson) to the knee joint there is no mention of the popliteus tendon.

On page 158, in a description of an antero-medial approach to the knee joint, it is stated: "Incise the medial articular capsule in the line of its fibres. This will avoid injury to the infrapatellar nerve." This nerve is subcutaneous at the level of the knee joint, and its fate is determined more by the skin incision than by the line of the incision of the capsule.

It would be difficult to justify an approach to the calcaneus by the plantar method as described.

Exposures of joints are on the whole well done. As would be expected from Nicola, the various approaches to the shoulder joint are well illustrated. In some respects a lack of balance is shown. Six methods of exposing the shoulder joint and eleven methods of approaching the knee joint are described and illustrated. There is no description of posterior approaches to the humerus or tibia or of anterior or lateral approaches to the radius. No methods of exposure of the metacarpals or metatarsals are mentioned.

As "Atlas of Surgical Approaches to Bone and Joints" is almost unique and fulfils a definite want, it may be classified as a type of book midway between a book on surgical anatomy and a book on operative surgery. In many works on operative surgery the route of approach is lost in a mass of surgical technique. In this book the reader is told how to arrive at an anatomical destination, but is not told what to do when he has arrived, and, therefore, to a student it would be of value only in the clarification of various aspects of operative surgery.

It is a pity that this publication had not appeared earlier when young army surgeons would have found it of great value. The atlas is a tradesman's manual, and by its nature has no literary merit; nevertheless it can be confidently recommended as a quick clear reference book to surgeons both young and old.

[1] "Atlas of Surgical Approaches to Bones and Joints", by Toufick Nicola, M.D., F.A.C.S., with a foreword by Norman T. Kirk; 1945. New York: The Macmillan Company. Sydney: Angus and Robertson Limited. 11" × 8", with many illustrations. Price: 37s. 6d.

XUM

The Medical Journal of Australia

SATURDAY, JUNE 8, 1946.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

A REPORT ON THE REMUNERATION OF GENERAL PRACTITIONERS.

AUSTRALIAN medical practitioners are following with interest the information available to them concerning the discussions that are taking place in Great Britain about the National Health Service Bill. In the issue of this journal for May 25, 1946, an account was given of the special Representative Meeting of the British Medical Association which was held at Tavistock Square, London, to discuss the bill, while the Commons at Westminster were giving it its second reading. The bill is planned in such a way that medical practice, under its provisions, would undergo many changes and the lot of the medical practitioners would be very different from what it is today. Mr. Aneurin Bevan, the Minister of Health, and his protestations notwithstanding, the practitioner would be a servant of the State. In these circumstances it is of great interest to take note of a recent report by an inter-departmental committee on the remuneration of general practitioners.[1] The report is the work of a committee appointed by the Coalition Government in February, 1945, with the following terms of reference:

To consider, after obtaining whatever information and evidence it thinks fit, what ought to be the range of total professional income of a registered medical practitioner in any publicly organized service of general medical practice; to consider this with due regard to what have been the normal financial expectations of general medical practice in the past, and to the desirability of maintaining in the future the proper social and economic status of general medical practice and its power to attract a suitable type of recruit to the profession; and to make recommendations.

The chairman of the committee was Sir Will Spens, Master of Corpus Christi College, Cambridge, and the members included four general practitioners nominated by the British Medical Association, an accountant, a solicitor, a member of the Trades Union Council (Social Insurance Department) and Sir Ernest Fass, who is the one dissentient to the report, and adds to it a special rider of his own. Commenting on the report, *The Times* stated that it would give Mr. Bevan much to think about, and with this most medical practitioners will agree.

The committee took evidence from the principal medical organizations in the country and from certain organizations connected with other professions. A general invitation was also issued to anyone with relevant information to supply it. In regard to "the normal financial expectations of the medical profession in the past", the committee has used tables for 1936, 1937 and 1938, drawn up by Professor Bradford Hill for the British Medical Association, and its conclusions regarding the payments that should be made to doctors are stated in terms of the value of money in 1939. When adjustments are made for present-day values, allowance, it is stated, must be made for increases that have taken place in incomes in other professions. The tables of pre-war incomes dealt with three classes of practice—urban, country and mixed. The committee has concentrated on net figures for the urban type of practice; other types are dealt with in the light of conclusions reached in this way. The most serious problem to be faced was that between 40 and 55 years of age, that is, throughout the best years of a general practitioner's working life, almost 20% of urban practitioners had a net income of under £700 a year, and over 40% had a net income of under £1,000 a year. Having regard to the length of training, to the arduousness of a general practitioner's life compared with that in other professions, to the greater danger to health, to the skill and other qualities required and to the degree of individual responsibility, the members of the committee were unanimous in holding that the percentages of low incomes were too high. They also regard it as clear that the proportion of practitioners able to reach a net income of £1,300 or over is too low. They consider that "unless conditions are substantially improved in both these respects, and on the basis of a pre-war value of money, the social and economic status and the recruitment of general practice could not, in the long run, be maintained". This, they think, would be true even apart from proposals for a publicly organized general medical service. There is a threat to general practice from other branches of medicine. Unless the financial expectations in general practice are substantially improved, the majority of abler men will seek to become specialists, because as specialists they will have an equal outlet for their interests in medicine, will be able more easily to keep in close contact with hospitals and with medical progress, and will have a less arduous life. The committee ("and not least our lay members") considers that it would be disastrous to the profession and to the public if general practitioners were recruited only from the less able young doctors. With this everyone concerned with the efficiency of medical practice will be in entire agreement. The question would permit of a long discussion, and in such a discussion reference would have to be made to the different types of mind best suited to general work and to specialism. It may, however, be claimed that general practice in its best form demands study just as devoted and intense as is required by any of the major specialties. A factor to which the committee attaches great importance chiefly concerns the general practitioners—"the help, sup-

[1] Report of the Inter-Departmental Committee on Remuneration of General Practitioners, Ministry of Health and Department of Health for Scotland; 1946. London: His Majesty's Stationery Office, pp. 31. Price: 6d.

port and comfort which a doctor can give to his patients must . . . be seriously affected if a doctor is himself seriously worried". It is thought that low incomes have been a source of grave worry to many general practitioners and must have prejudiced their efficiency. This remark would apply to some other professions, as well as to that of medicine, but the relation of doctor to patient is more intimate than the relation of any other professional man to the person whom he serves.

The income distribution which the committee thinks should obtain is set out in a table. When it states an income, it means an income remaining after the deduction of professional expenses allowed for income tax purposes. Before 1939 the percentage of doctors in the age group 40 to 49 years who had an income below £700 a year was 20; the percentage now suggested is 7. Before 1939 the percentage with an income of £700 to £1,000 was 22·5; the suggested percentage is 20. The two percentages for income £1,000 to £1,300 are 21 and 24; for incomes between £1,300 and £1,600 they are 17·5 and 24; from £1,600 to £2,000, 10 and 16; and over £2,000, 9 and 9. This makes rather a bald statement. Perhaps what is meant is better expressed in one of the recommendations. This is that a scheme should be devised in respect of a public organized service which will ensure that between forty and fifty years of age approximately 50% of general practitioners receive net incomes of £1,300 and over, and which will also secure so far as practicable that between forty and fifty years of age three-quarters receive net incomes over £1,000, that approximately one-quarter receive net incomes over £1,600, that slightly less than 10% receive net incomes over £2,000, and that in a small proportion of cases it is possible to obtain net incomes of at least £2,500. This proposal is stated to be approximately equivalent to the augmentation of net incomes by £200 in the cases of incomes between £400 and £1,200, and in the case of incomes over £1,200, by £200 at £1,200, diminishing progressively to nothing at £2,000. It should perhaps be pointed out that Sir Ernest Fass in his rider claims that sufficient attention has not been paid to the earnings in other professions. He would start entrants to a service at £500 a year and advance them in three years to £700. He would increase the percentages in the higher ranges of earnings, and he thinks that it should be possible for every doctor to reach £1,200 by the age of forty, and that nothing should prevent him from reaching the higher ranges before that age. The other members of the committee in one of their recommendations state that on completion of resident hospital appointments a recently qualified practitioner should secure an initial net income of not less than £500 *per annum* as an assistant to a doctor in general practice. It also holds that the difference that has existed between the incomes of rural and urban practitioners should be reduced.

This inter-departmental report contains a good deal more information than has been set out here, and the figures that have been given cannot be taken as applicable to Australia. Australian practitioners can see from them something of the trend of thought among certain persons in Britain who give attention to matters of this kind. The report was presented to Parliament by the present Minister of Health and the Secretary of State for Scotland. It remains to be seen how far they will be guided by it.

Current Comment.

HYPERTENSIN.

WHEN in the nineties of last century E. H. Starling demonstrated that the filtration in the kidney glomeruli is a purely physical happening, he early hinted that the high arterial pressure in certain kidney diseases is an automatic adjustment whereby better filtration can be assured. How this regulation can be carried out he did not specify. In 1898, in a deservedly lauded investigation, Tigerstedt and Bergman discovered in extracts of the cortex of the kidney a substance, named by them renin, which produces, when injected, a sustained rise of systemic arterial pressure.[1] The next contribution of note to the story was made in 1938 by Kohlstaedt, Helmer and Page, who found that renin in the absence of plasma protein produces no vasoconstriction when perfused through a dog's isolated tail, but when plasma is present the pressor reaction is obtained. After this came an interesting example of identical discoveries being made in two different countries and with the usual unfortunate result that a different nomenclature was devised. Both in Buenos Aires and in Indianapolis (United States of America) it was clearly demonstrated that renin acts on a protein, hypertensinogen in the South American terminology, producing a potent pressor agent which they named hypertensin (angiotonin in Indianapolis). The Buenos Aires view that renin is an enzyme of proteoclastic character has subsequently been shown to be correct. Research, as might be expected, now became brisk over the civilized world. Attempts to prepart a pure renin suffered from the difficulties which beset all efforts at purification of enzymes; but investigations on hypertensinogen were more successful, and this substance was found to possess the properties of a pseudo-globulin, produced in all likelihood in the liver. H. and R. Croxatto in 1941 showed that hypertensinogen digested with pepsin for a brief period of time produces a pressor substance which they called pepsitensin.[2] Naturally it was towards hypertensin, the true pressor agent, that investigators in many lands directed their research energies. The physiologist and pharmacologist proved that the action is peripheral; the biochemist announced that it is a polypeptide and can be destroyed by prolonged proteoclastic enzyme action. One of the most painstaking investigations on hypertensin was carried out in the chemical department of Karolinska Institute, Stockholm, by Pehr Edman.[4] Certain properties of hypertensin facilitated the inquiry. In the first place it is soluble in ethyl alcohol (85%-90%); secondly, it is adsorbed from alcoholic solution by aluminium oxide and from this it can be released by methyl alcohol diluted with water; in the third place, hypertensin is precipitated by nitranilic acid. Armed with this technique, Edman prepared hypertensin in sufficient amount to subject it to physical and chemical investigation. Its diffusion constant indicates a molecular weight of 2,700; the iso-electric point is around pH 6·8. Laborious chemical analysis, including the new technique of chromatography, indicated that it is compounded of many amino acids, histidine preponderating.

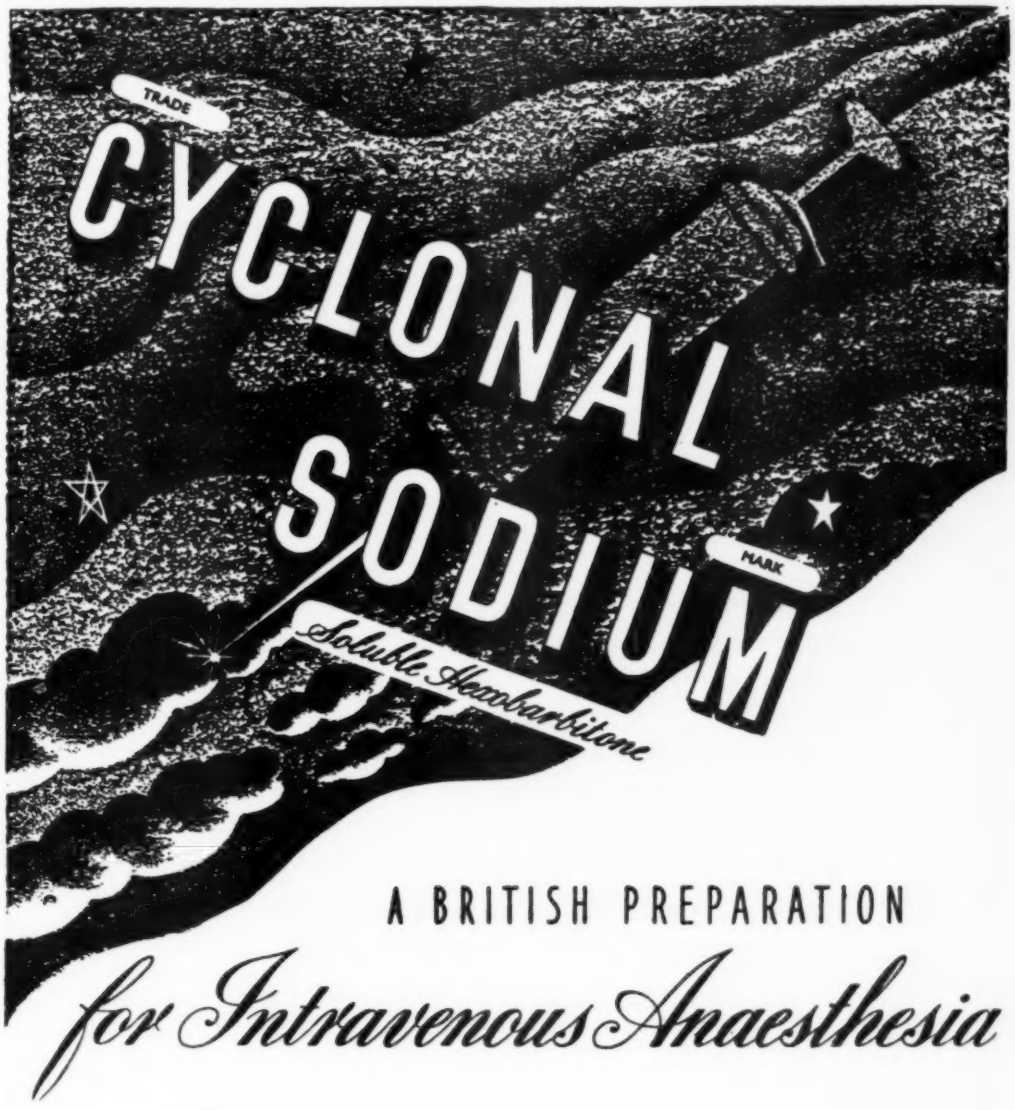
No doubt further investigations are now being actively conducted on this substance and on its precursors, but the clinician is inclined to look coldly on hypotheses which cover only a part of the syndrome which he meets and observes, and he is not in the least impressed by complicated physico-chemical graphs and equations. He has an instinctive, and on the whole a salutary, attitude of caution when explanations are advanced which offer too simple a solution. At one time glaucoma was regarded as

[1] *Skandinavisches Archiv fur Physiologie*, Volume VIII, 1938, page 147.

[2] *Proceedings of the Society for Experimental Biology and Medicine*, Volume XXXIX, 1938, page 214; also *American Heart Journal*, Volume XIX, 1940, page 92.

[3] *Proceedings of the Society for Experimental Biology and Medicine*, Volume XLVIII, 1941, page 392.

[4] *Arkiv för Kemi, Mineralogi och Geologi*, Volume XXII, No. 3, 1946, page 1.



A BRITISH PREPARATION

for Intravenous Anaesthesia

Supplied in ***Boxes of 6 x 0.5 gm. ampoules with 6 ampoules distilled water.***
Boxes of 6 x 1 gm. ampoules with 6 ampoules distilled water.
Boxes of 25 x 1 gm. ampoules with 25 ampoules distilled water.

M&B

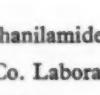
MAY & BAKER (AUSTRALIA) PTY. LTD., 5 PHILLIP STREET, SYDNEY

SULPHAGUANIDINE

'B.W.& CO.'

Sulphanilylguanidine, a sulphanilamide derivative first prepared in the Burroughs Wellcome & Co. Laboratories. Specific in the treatment of bacillary dysentery of all types and in carrier cases; also effective in many cases of non-specific diarrhœa, and in neonatal gastro-enteritis. Successful results have been reported also in proctitis of lymphogranuloma inguinale, ulcerative colitis, regional ileitis and diverticulitis. The drug has been widely used as a prophylactic measure in surgery of the large intestine.

The product is available for oral administration as 'Tabloid' brand Sulphaguanidine, 0·5 gramme, in bottles of 100 and 500.



BURROUGHS WELLCOME & CO. (AUSTRALIA) LTD.
(Incorporated in England)
SYDNEY, N.S.W.

ASSOCIATED HOUSES:
LONDON NEW YORK MONTREAL CAPE TOWN BOMBAY SHANGHAI BUENOS AIRES

merely the result of blocking of the spillway of the canal of Schlemm; now many types are described as "a sick eye in a sick body". It lies well within the limits of possibility that investigations on renin, hypertensinogen, hypertensin and hypertensinase may throw light on the very pressing problem of hypertension; but the clinician must not be censured if he refuses to accept a partial solution as a complete one.

SLEEP PARALYSIS.

SLEEP has been the subject of much study in the attempt to understand not only the cerebral mechanisms involved in normal sleep but also those concerned in its abnormalities. Not the least curious of these latter is sleep paralysis, in which the motor functions are still submerged in sleep while consciousness is alert and complete. It occurs either during the approach of slumber or on waking, and for a short space of time, varying from seconds to minutes, the individual is unable to move and usually feels intense anxiety. The subject has been raised in connexion with combat fatigue in pilots engaged in operational missions, and of a series of twelve cases three are fully analysed by Carel van der Heide and Jack Weinberg.[1] Their case histories show clearly that factors related to combat experiences undoubtedly precipitated the condition, but basically the type of reaction to fatigue was also related to the character and personality of the patients. Fortunately, the ordeals of combat experiences are now over, but in the world of today there are only too many other causes of psychic disturbance. Sleep paralysis has not been mentioned particularly in the writings of military psychiatrists, but van der Heide and Weinberg quote Crofton as describing a number of sleep disturbances amongst which is included sleep paralysis encountered under the strain of battle. It is of particular interest to notice that not only hypersomnia and hallucinatory states are mentioned among these conditions, but also narcolepsy and cataplexy. These latter states were brought prominently before neurologists after the last war, and then were usually classed as idiopathic, whatever that may mean, or as a sequel of encephalitis.

Van der Heide and Weinberg think that Langworthy and Betz have made a valuable contribution to the knowledge of the subject by including these narcoleptic states, somnambulism, sleep paralysis, nocturnal hallucinations and terrifying dreams as neurotic defences. They regard them as manifestations similar to hysterical reactions. It is important to realize that many of these disturbing aberrations of normal sleep may have a psychological background, and may therefore be amenable to treatment. Of course it is necessary to be thorough in examination and open-minded of idea; organic disease, either inflammatory or neoplastic, must be excluded. In the present small series a common factor was present: the men were all, in the words of the authors, "intensely disturbed by confusion as to their emotional direction". They were all indecisive, though they showed no signs of a compulsion neurosis. Physiologically the condition is of great interest, as the disturbance of bodily function is so widely diffused. In these patients the pattern of symptoms was uniform, and in no case was it combined with any other of the sleep variants or anomalies mentioned above. As a matter of fact sleep paralysis is a state that must be known in essence if not in name to many experienced practitioners. Those interested in the byways of literature may perhaps recall that strange writer who styled himself Baron Corvo. His personality would certainly be called "colourful" by the Press reporters today; psychiatrists would have another name for it. He wrote a graphic account, allegedly true, of his own interment in a vault during a prolonged hysterical episode of cataleptic type. The coexistence of acute powers of observation with depression of motor activity was described by him with introspective ardour in a revelation of the psyche which was published in the *Wide World Magazine* many years ago. Less drastic remedies than sepulture would be in order today, even if in good faith, or so we hope for the sake of clinical reputations, but even a superficial analysis of similar cases, such as every good doctor should be able to carry out, would help in revealing the mechanism, and thereby opening the way to relief or cure.

[1] *Psychosomatic Medicine*, November, 1945.

ARANEIDISM.

POISONOUS SPIDERS are apparently to be found in greater variety and number in South America than in Australia, where the species are very limited and records of bites few. Brazil in particular seems to be afflicted with an unusual multitude of these pests, and so we find the Faculty of Medicine in Montevideo, Uruguay, inviting Professor C. Mello-Leitao, a distinguished zoologist and pædiatrist, to give an address on this topic.[1] The detail which is given has little immediate clinical interest for Australians, but the biological significance, as the author eloquently points out, is profound. According to this author spider venoms can be classified according to their actions into two main classes, and each of these into two subsidiary groups. The first class is neurotropic. One of the subsidiary groups of this class produces generalized hyperæsthesia with a zone of anæsthesia around the point of puncture, followed by cramps, rise of arterial pressure, bradycardia, depression of body temperature and progressive flaccid paralysis; the second is tetanic, and produces violent contractions both tonic and clonic, tachycardia, spasm of smooth muscles and convulsion crises. The second class is necroso-œdematous. One of its subsidiary groups produces extensive skin necroses, but without general reaction, beginning as a hard painful œdema with local erythema; the second produces œdema and phlyctenules, necrosis with deep ulceration, hæmaturia and hæmoglobinuria. The author surveys the whole field of animals which elaborate poisons, and makes an interesting comparison between those which use venom chiefly for attack and those which employ it for defence. In the former, or aggressive type, the glands secreting the poison are large, pluricellular and mostly found as a pair; there is present a stabbing organ which can conduct the venom to the wound; antibodies for the venom can be produced by appropriate means and used in treatment; the creatures of this type are smaller than their victims and have no marked defensive armament. In the other group, the defensive, the secreting glands are small, unicellular, very numerous and scattered over a wide area of skin; the secretion is vesicant and very different in its action from the poison of the aggressive group; laboratory injection leads to sensitization and allergy.

Broadly and philosophically viewed, the occurrence of venoms presents the problem so frequently encountered in biology of totally different mechanisms and chemical agents being discovered in different species with an identical objective. Just as we find some six or seven completely divergent devices for changing the focus of the eye, so here in the formation of poison. The work of Kellaway and his school has shown us how dissimilar are the venoms of Australian snakes, which fact has the unfortunate consequence that to treat a snake bite with serum one must know the species of the offending reptile. Poison is used by the lowest metazoa, and it cannot fail to arouse our wonder and speculation why in the highest animals, the mammals and birds, it has been abandoned in the evolutionary ascent, the platypus being in this, as in so many respects, a veritable missing link. Possibly poison did not pay in the long run. In an able address conforming with every good tradition of scientific exposition, it is arresting to find in the final paragraph the statement that there are in our midst social and political poisons more dangerous than the bites of spiders. With that reflection we must all sorrowfully agree.

[1] *"Comentarios Sobre Los Aranetsmos"*, *Anales de la Facultad de Medicina de Montevideo*, Volume XXX, 1945, page 947.

XUM

Abstracts from Medical Literature.

DERMATOLOGY.

Treatment of Ichthyosis.

H. H. GORDON (*Archives of Dermatology and Syphilology*, September, 1945) gives the results of treatment of two soldier patients suffering from ichthyosis. The report of Rapaport, Herman and Lehman suggested a vitamin *A* deficiency as an ætiological factor of ichthyosis. Large doses of vitamin *A*, 60,000 to 200,000 units, given daily by mouth, produced favourable results in all the six patients treated. Another plan of treatment was reported by Ljungstrom. This author noted that in a patient with severe ichthyosis, sites of excessive perspiration were free of lesions. A treatment of daily baths in 3% sodium chloride solution followed by application of 10% sodium chloride in hydrous wool fat was able to keep the patient symptomless for five months. The author's patients were treated by these two plans singly and combined. In addition bile salts and "Neostigmine" were used because Spector, McKhann and Meserve had reported that absence of bile salts was a large factor in the interference with the absorption of vitamin *A*. In view of existing shortage of vitamin *A*, a simple and workable therapy for ichthyosis, the sweating treatment, can be an adequate substitute for vitamin *A* therapy.

Colloid Degeneration of the Skin.

S. S. ROBINSON AND S. TASKER (*Archives of Dermatology and Syphilology*, September, 1945) quote Way, who in 1942 reported the use of ascorbic acid in the treatment of colloid milium in a patient who had laboratory evidence of vitamin *C* deficiency. After an attempted correction of this deficiency the cutaneous lesions disappeared. The authors describe the condition, and in the laboratory examination it was found that the blood plasma had an ascorbic acid content of 0·6 milligramme per 100 millilitres compared with the normal value of 0·7 to 1·4 milligrammes. The cholesterol level was 277 milligrammes per 100 millilitres of plasma. Treatment consisted of a diet with a high vitamin *C* content, containing fresh fruit, fresh vegetables and animal protein. Three hundred milligrammes of ascorbic acid were given daily by mouth and 500 milligrammes intravenously twice a week. Two months afterwards the papules on the face and dorsa of the hands began to disappear. One year later all the lesions except for a few small papules on the back of the left hand had disappeared. No recurrent or new colloid milium lesions have appeared since the administration of ascorbic acid. In their comment the authors quote experimental studies of other authors showing the importance of vitamin *C* in regulating the development of collagen and the physical character of the intercellular fluid. Exposure to the actinic rays of the sun may play an important part in the production of colloid degeneration of the skin, as in almost all reported cases of the disease there is localization of the lesions to the exposed surface of the face and hands. Hypercholesteræmia observed in the authors' patient is the fourth recorded instance of increased blood cholesterol in association with colloid degeneration. Their patient had no toxic reactions attributed to the treatment.

Dermatoses of the Hands.

C. G. LANE, E. M. ROCKWOOD, C. S. SAWYER AND I. H. BLANK (*The Journal of the American Medical Association*, August 4, 1945) state that the various "eczematoid" dermatoses which begin on the hands and remain limited primarily to the hands and lower part of the arms constitute about 10% of the cutaneous disturbances seen in private practice or in a dermatological clinic. In spite of extensive investigation by various well-known authorities no agreement now exists regarding nomenclature, ætiology or therapy of these "eczematoid" dermatoses. The authors ask whether it is not true that a patient will have a dermatosis of the hands which will be called contact dermatitis of unknown ætiology by one dermatologist and dermatomycosis by another, or cheiropomphlyx by one and dermatophytid by another. During the last three years the authors have studied 475 patients, nearly all new patients, with "eczematoid" dermatoses of the hands. In very few of the cases was it possible to confirm the diagnosis of dermatomycosis, dermatophytid, contact dermatitis or soap dermatitis. A large number of these patients have shown recurrent attacks of a papular, vesicular and crusted eruption limited primarily to the hands. The following hypothesis is presented as an explanation of the pathogenesis of the disease entity appearing in this group of patients. (i) There are various inciting or complicating factors: excessive soap and water, vasomotor instability, trauma, menstruation, hot or cold weather or focus of infection. (ii) There occurs an alteration of host-bacteria relationship. (iii) There may be a superficial bacterial invasion of the skin, with or without sensitization. (iv) The inciting factor may be removed, but the eruption may persist as infectious eczematoid dermatitis, a recurrent superficial invasion of the skin by bacteria of low virulence which relapses when the host-bacteria relationship is disturbed by one or more of the aforementioned complicating factors. In the acute phases, mild antiseptic soaks or compresses and a soapless *régime* have been successful. The authors have returned to a school of thought which began nearly fifty years ago, led by Vrina, namely, the importance of bacterial invasion as a causal factor in many of the "eczematoid" dermatoses. It is their opinion that many of the cutaneous disturbances of the hands, which are being called dermatomycosis, dermatophytid, contact dermatitis, housewives' eczema, dermatitis due to soap, neurodermite, nummular eczema or bacterid, should be more correctly called infectious eczematoid dermatitis.

Lupus Erythematosus.

L. C. GOLDBERG (*Archives of Dermatology and Syphilology*, August, 1945) treated twenty-one patients suffering from chronic discoid *lupus erythematosus* with oxophenarsine hydrochloride. A chance observation during modified intensive arsenotherapy of a soldier having both syphilis and chronic discoid *lupus erythematosus* impelled the author to use oxophenarsine hydrochloride for the latter disease. The lesions of *lupus erythematosis* cleared rapidly, and in order to determine whether this was merely coincidental, more patients were given oxophenarsine hydrochloride. Of twenty-one patients, all except one had a definite sensitivity to light, severe cold, heat or biting winds. Oxophenarsine hydrochloride was given twice a week intravenously in doses of 0·02 gramme in four millilitres of distilled water. There were no untoward symptoms. Improvement seemed to take place immediately; the patients definitely noticed it after the second injection. The average number of injections given was ten. Four patients had increased sedimentation rates, but these returned to normal after treatment was discontinued. The first objective condition to disappear was erythema; this was followed by the disappearance of the scaling. Pigmentation decreased but never disappeared and scarring was not affected.

Penicillin in the Treatment of Cutaneous Disease.

A. G. FRANKE, W. L. DOBES AND D. ROMANO (*Archives of Dermatology and Syphilology*, July, 1945) write about forty-one patients with cutaneous diseases who were given local and parenteral treatment with penicillin. This drug was found to be useful in the treatment of *sycosis vulgaris*, *impetigo contagiosa* and gonorrhœal conjunctivitis when used locally. Whether penicillin was used intramuscularly or intravenously, it proved to be beneficial for *sycosis vulgaris*, pustular acne, Ludwig's angina and chronic cutaneous disease complicated by secondary infection with pyogenic organisms. It was of no value for psoriasis, *lichen planus*, favus, *lupus erythematosus*, *pemphigus foliaceus*, seborrhœic or fungous dermatitis.

A Tropical Disease Resembling Lichen Planus.

J. W. BAGBY (*Archives of Dermatology and Syphilology*, July, 1945) states that since the beginning of the war there have appeared on some tropical islands of the Pacific numerous cases of a disease which in its clinical appearance is suggestive of *lichen planus*. According to the histories obtained, some of these eruptions begin as true *lichen planus*. In others, a generalized erythematous eruption, usually diagnosed as an exfoliative dermatitis, is followed by localized patches of the disease under consideration. In still others large areas of pustules develop, thought to be secondarily infected miliaria or impetigo, which in healing are replaced by lesions resembling hypertrophic *lichen planus*. The distribution is usually generalized, with the extremities showing the heaviest involvement. The face is usually involved. Thickened greyish white patches on the tongue and oral mucosa are commonly observed. Hypertrophic lesions on the palms and soles are common, as are thickening, separation, ridging and discoloration of the finger nails and toe nails. Acute lesions consist of papules and confluent papules and nodules. They are covered with a heavy, greyish, warty adherent scab.

When this is removed the underlying area bleeds and has a brown to purple colour. With regression of the disease the involved areas vary from those which have a light brownish colour to atrophic, depressed, deeply pigmented scars. The tongue and oral mucosa, when affected, do not improve with the remainder of the eruption. In the initial stages of the disease itching is usually present; in a few instances this was described as severe. All the affected persons in the author's cases were shore-based. Dietary deficiency and toxicity of or sensitivity to quinacrine hydrochloride have been suggested as possible causes of the eruptions, but the author doubts this, and he believes that further investigation will show that some unusual combination of factors is necessary to produce this disease.

UROLOGY.

Perineal Prostatic Adenomectomy.

A. P. GORRO (*Urologic and Cutaneous Review*, October, 1945) reports from Barcelona, Spain, on a highly developed surgical technique which he has evolved for perineal prostatic adenomectomy. The author claims that with his technique and specially designed instruments there is no risk at all of damaging the sphincter of the membranous urethra. Moreover, after the enucleation he attaches the vesical opening accurately by suture to the divided urethra and also closes the prostatic cavity completely by suture, so that no hæmorrhage can occur. Post-operative drainage of the bladder is simply by retained catheter, with gauze and rubber tube drainage of the perineal wound. No case reports or statement of results are included in this paper.

Bilateral Uretero-Intestinal Anastomosis.

A. DAVALOS (*The Journal of Urology*, October, 1945) describes a new technique for simultaneous bilateral implantation of the ureters into the sigmoid colon at such a level that the ureters are not unduly tense or lying too loose after the anastomosis. The incision in the bowel wall is anterior and transverse, passes through serosa and muscularis only, and avoids the circularly running vessels. Towards each end of this incision another small one is made, running obliquely upwards and laterally, and also through serosa and muscularis. The lower edge of the transverse bowel wall incision is undermined in order to expose as large a surface of submucosa as possible. Each ureter is ligated below and divided; the divided edge is cut to a bevel with the bevel facing anteriorly and the point of this is attached by very fine silk to the submucosal surface, close to the lower margin of the wound. The penultimate portion of each ureter is then embedded by silk sutures in each of the small oblique incisions previously made in the bowel wall. Three Lambert mattress sutures of fine silk are now placed, but not tied, so as to close the transverse bowel-wall incision later, and to invert it. Just before this is done, a transverse incision is made in the exposed submucosa and mucosa just below the ureteric ends. Now, when the mattress sutures are tied, the ends of the ureters lying on their shelf of valve-like protecting submucosa enter the bowel. Additional silk sutures are needed to reinforce the bowel closure. This technique was employed experimentally in ten dogs. The results were excellent, there being not a single instance of hydronephrosis following operation. It is claimed for this new technique that (*a*) a transverse incision in the bowel wall damages blood vessels less than any other, (*b*) bilateral implantation is done at one operation and through one bowel incision, (*c*) the large mucosal flap which is inverted into the bowel acts as a valve and protects the anastomosis against retrograde infection, and (*d*) the drainage of the ureters is under direct observation during the entire procedure, and there is no danger of ureteric compression by the inverting mattress sutures.

Duplication of Renal Pelvis and Ureter.

R. GOYANNA AND L. F. GREENE (*The Journal of Urology*, July, 1945) have studied the pathological and anomalous conditions that were found associated with renal pelvis and ureter duplication in 131 patients at the Mayo Clinic in ten years. One hundred and fifty-four such conditions were discovered in this series. The commonest pathological condition was hydronephrosis, hydroureter or both. This was about twice as common on the right side as on the left and nearly twice as common in the lower as in the upper renal segment. In all cases of ectopic opening of the ureter and in all cases of ureterocele, the ureter from the upper pelvis was the one affected. The following radiographic signs point to duplication: (*a*) elongated renal shadow, (*b*) the failure of a portion of the renal shadow to show excretion urographically and (*c*) a characteristic shape of the urographic pelvic outline. Excretion urography cannot be depended upon to distinguish between complete and incomplete ureteric duplication. Even cystoscopy and retrograde pyelography may fail when a supernumerary orifice is hidden, or in incomplete duplication. A history of congenital incontinence associated with normal micturition is strongly suggestive of duplication with ectopic ureter.

True Infective Abacterial Pyuria.

T. MOORE (*The British Journal of Urology*, December, 1945) has given the name true infective abacterial pyuria to an infection of the urinary tract which he believes to be due to an ultramicroscopic virus. The mucosa of the posterior part of the urethra, or the bladder, or the upper part of the urinary tract on one or both sides, or any combination of these, is affected. Characteristically the infection resists the sulphonamides, but is rapidly cured by a short intravenous course of "Novarsenobenzol". Pathological studies of the kidney have been made in cases in which that organ has been excised in the mistaken belief that it was tuberculous. The mucosa of the renal pelvis is thickened, congested and œdematous, with adherent flakes of lymph. Gross suppuration does not occur. There is no disease of the renal parenchyma. Microscopically there is infiltration of the submucosa with mononuclear cells, some aggregated into follicles. No germs could be demonstrated. The symptoms are usually those of severe cystitis, very few renal symptoms occurring. Pyrexia is absent. Pyuria is present, but no culture can be grown. If doubt exists about the nature of the disease, the therapeutic test with four injections of "Novarsenobenzol" (0·3 gramme) at five-day intervals is most convincing.

Prognosis of Renal Tuberculosis.

R. M. NESBIT, W. A. KEITZER AND J. M. LYNN (*The Journal of Urology*, September, 1945) have made a study of 260 proved cases of renal tuberculosis in which the patients were followed up for a minimum of five years. Males were affected more often than females, in a ratio of about 2:1. In about one-third of the cases the urinary tract was secondarily affected with germs other than the tubercle bacillus. Just over 50% of patients treated by nephrectomy are living after eleven years, while over 80% of patients not operated on have died in an average of three years. The disease tends to be more fatal in males, and many authors have considered this to be due to the greater prevalence of genital involvement in the male. The authors, however, hold that since vital statistics show that the aggregate mortality of all forms of tuberculosis is higher in males than in females, it seems logical to assume that genito-urinary tuberculosis simply follows the same trend. Most authorities believe that urinary tuberculosis is part of a generalized systemic disease and the authors concur. Therefore, every patient with urinary tuberculosis has a chest skiagram prepared; if the result is positive, nephrectomy is withheld until the physician thinks that the lung lesion is arrested or stable enough to permit safe operation. Following operation, a minimum of six months of bed rest in a sanatorium is required. In the above statistics of 80% mortality among patients not operated on, these people are those who refused operation even though it was indicated, as well as those whose general or urinary tract condition precluded operation.

Sulphacetamide in Urinary Tract Infections.

D. LEHR (*The Journal of Urology*, July, 1945) has made experimental studies with sulphacetamide (*p*-aminobenzene-sulphonyl-acetyl-amide), comparing its antibacterial action and toxicity to tissues with those properties in other sulphonamides. Young albino rats were used in the experiments and the drugs were administered intraperitoneally. As well as sulphacetamide, plain sulphanilamide, sulphathiazole and sulphadiazine were used. In agreement with previous studies by Donovick and Henderson in 1941, the author states that sulphacetamide is by far the least toxic of this group. Antibacterial effect against bacillary and coccal organisms was as great as that obtained with sulphadiazine, but renal damage and tendency to crystalline precipitation were markedly less. The latter advantage of sulphacetamide is due to its greater solubility in water, being 115 times that of sulphadiazine. Even when the urinary concentration of sulphacetamide was pushed excessively, for example, to 6,000 milligrammes per 100 millilitres, renal damage was not encountered.

XUM

British Medical Association News.

SCIENTIFIC.

A MEETING of the New South Wales Branch of the British Medical Association was held on April 16, 1946, at the Royal Alexandra Hospital for Children, Camperdown. The meeting took the form of a number of clinical demonstrations by members of the honorary medical staff of the hospital.

Prolonged Pyrexia.

DR. R. J. TAYLOR showed a male child, aged four years, who had been admitted to the hospital on March 23, 1946. The child had suffered from pyrexia for nine weeks previously. The illness commenced with swollen joints and high fever, the ankles, wrists and fingers being affected. Pain in the back of the neck was present. The child's appetite was fair, his pallor was increasing, and his bowels were open regularly.

On examination, the child was seen to be pale, with a puffy face. A discrete, fading rash was present on the body. The spleen seemed to be palpable, and the liver was slightly enlarged. The axillary, cervical and inguinal glands were somewhat enlarged. A mitral systolic murmur was present. No abnormality was detected on examination of other systems.

On March 23, examination of a smear of the urine revealed Gram-positive cocci and Gram-negative bacilli; culture from the urine yielded a growth of *Staphylococcus albus* and *Bacillus proteus*. On March 26 a blood count gave the following information: the erythrocytes numbered 3,270,000 and the leucocytes 13,750 per cubic millimetre, and the hæmoglobin value was 10·2 grammes per 100 millilitres; of the leucocytes, 81% were neutrophile cells, 14% were lymphocytes, 4% were monocytes, 1% were eosinophile cells. On March 28 X-ray examination revealed no abnormality in the lungs; on the previous day the child's temperature had been 101° F., and the blood was found to be sterile. On April 6 a further blood count gave the following information: the erythrocytes numbered 4,810,000 and the leucocytes 10,800 per cubic millimetre, and the hæmoglobin value was 11·0 grammes per 100 millilitres; of the leucocytes, 78% were neutrophile cells, 18% were lymphocytes, 2% were monocytes and 2% were eosinophile cells. No malaria parasites were seen. On April 10 agglutination tests for *Brucella abortus* and *Brucella melitensis* gave negative results, and on April 12 no ova were detected on examination of the fæces, the Casoni test failed to produce a reaction, and the Mantoux test gave a negative result with 1/1,000 tuberculin.

Dr. Taylor said that on the child's admission to hospital his temperature was 100° F., and on March 27 it was 101·8° F. He was then apyrexial until April 11, when his temperature rose to 100·8° F. On April 13 his temperature was 100·4° F., on April 14 it was 99·4° F., and on April 15 the child was apyrexial. In other respects the child was perfectly well, and Dr. Taylor asked for opinions on the diagnosis. It was finally decided that the condition was due to acute rheumatism.

Early Mitral Stenosis.

Dr. Taylor's next patient was a girl, aged eleven years, who had been admitted to hospital on July 12, 1945, having been ill for three weeks previously. The illness had begun with pain in the legs and fever; she had had similar attacks of pain and slight fever at the age of four years and during the last three years.

On examination, the child was seen to be pale. The heart was enlarged, the apex beat being in the fifth intercostal space, four inches from the mid-line. The second mitral sound was accentuated, and systolic and diastolic mitral murmurs were present. The pulmonary second sound was accentuated. No abnormality was detected in the chest and abdomen.

On July 16 the blood sedimentation rate was 61 millimetres in the first hour and 69 millimetres in the second hour; on July 25 the respective figures were 34 and 50 millimetres, and on August 9 the respective figures were 19 and 39 millimetres. On August 16 persistent tachycardia was present, and a loud systolic murmur and an accentuated first sound at the mitral area were heard. On August 20 the blood sedimentation rate was 21 millimetres in the first hour and 37 millimetres in the second hour; on September 11 the respective figures were 24 and 40 millimetres. On September 18 the tachycardia had increased despite sedation; the apex beat was further displaced to five and a quarter inches from the mid-line. The child had a relapse, and a radiological examination of her heart was ordered; this revealed typical mitral stenosis with an enlarged left auricle and pulmonary congestion. On September 21 her blood sedimentation rate was 26 millimetres in the first hour and 58 millimetres in the second hour. On October 16 her pulse rate and temperature were normal, but the systolic murmur was loud; the blood sedimentation rate was 15 millimetres in the first hour and 39 millimetres in the second hour. On November 17 a pronounced presystolic murmur was present. On November 31 the blood sedimentation rate was 13 millimetres in the first hour and 35 millimetres in the second hour, the apex beat was moving inwards and the pulse was more regular. X-ray examination of the heart on January 20, 1946, showed it to be the enlarged "mitral" type of heart. On March 5 the blood sedimentation rate was 11 millimetres in the first hour and 26 millimetres in the second hour. On March 14 the child was sitting out of bed. On April 9 she was pale, her apex beat had moved well in, her heart sounds were unchanged and she was walking about.

Anæmia.

Dr. Taylor's final patient was a male, aged thirteen months, who had been admitted to hospital on February 14, 1946, weighing eleven pounds three ounces. The child was one of twins and had not been breast fed; he had had no previous illnesses. He was not gaining in weight, was pale and had a "big stomach".

On examination, the child was seen to be pale, emaciated and miserable. Evidences of rickets were beading of the ribs, the presence of Harrison's sulcus, the large size of the head with bossing and the protuberant abdomen. No abnormality was detected in the heart, chest, throat, ears and central nervous system. Neither the liver nor the spleen was palpable, and no masses were felt in the abdomen. Pigmentary changes, but no papilœdema, were observed in the optic fundi. Ordinary tests of the urine revealed no abnormality. The Wassermann, Kline and Mantoux tests produced negative results, the cerebro-spinal fluid was clear, and pathological examination of the urine revealed no abnormality. X-ray examination revealed slight rhachitic changes in the long bones, and X-ray examination of the abdomen after a barium meal showed that the condition was not Hirschsprung's disease. Investigation of the stools showed that the total fat content was 8·2% of the dry fæces; 9·8% of the total fat was unsplit fat and 90·2% was split fat. Several blood examinations were carried out. On February 15 the erythrocytes numbered 3,680,000 per cubic millimetre, the hæmoglobin value was 6·5 grammes *per centum* and the colour index was 0·59; the leucocytes numbered 9,400 per cubic millimetre, 68% being neutrophile cells, 28% lymphocytes and 4% monocytes. On March 20 the erythrocytes numbered 4,300,000 per cubic millimetre, the hæmoglobin value was 6·1 grammes *per centum* and the colour index was 0·48; the leucocytes numbered 9,100 per cubic millimetre, 52% being neutrophile cells, 36% lymphocytes and 7% monocytes. On April 7 the erythrocytes numbered 5,090,000 per cubic millimetre, the hæmoglobin value was 12·6 grammes *per centum* and the colour index was 0·85; the leucocytes numbered 5,500 per cubic millimetre, 36% being neutrophile cells, 59% lymphocytes, 3% monocytes and 2% eosinophile cells. Dr. Taylor said that the child had been treated by means of an adequate diet with extra vitamins and iron.

Aplastic Anæmia.

DR. LORIMER DODS discussed the case of a male child, aged eleven years, who had been referred by Dr. Noel Charlton. The child had suffered from headache, aching limbs and increasing pallor for several months before his admission to hospital. Apart from his extreme pallor, physical examination revealed no obvious abnormality. A blood examination carried out on the day of his admission to hospital gave the following results: the erythrocytes numbered 1,700,000 per cubic millimetre, the hæmoglobin value was six grammes *per centum*, and the leucocytes numbered 2,800 per cubic millimetre, 34% being neutrophile cells, 52% lymphocytes, 8% monocytes and 6% metamyelocytes; platelets numbered 315,000 per cubic millimetre. There was no obvious reticulocyte response, and no nucleated red blood cells were noted. There was no evidence suggesting a hæmolytic anæmia, the Van den Bergh test produced no reaction, there was no excess of urobilinogen in the urine and the red blood cell fragility was assessed as normal. There was no history or evidence of a drug or chemical hazard or of blood loss. The serum failed to react to the Wassermann test, and an X-ray examination of the long bones revealed no abnormality.

There was no apparent response to intensive tonic therapy with iron and vitamins *B* and *C*. Apart from a transient improvement after a blood transfusion, the blood picture remained practically unaltered during the next six months, the reticulocytes remaining at a level lower than 0·5% of the erythrocytes and the leucocytes below 5,000 per cubic millimetre, while the number of platelets was not obviously depressed.

Three weeks after the child's admission to hospital a sternal trephining operation was carried out and marrow smears were also taken; Dr. R. D. K. Reye reported on these in the following terms:

> A highly cellular marrow composed for the most part of closely packed cells with darkly staining irregular nuclei and scanty cytoplasm. Granular leucocytes, in varying stages of maturity, are present in reduced numbers, while erythropoietic cells are very scanty. Megakaryocytes not reduced. Comment: The appearances are consistent with a lymphatic leucosis (aleukæmic lymphatic leukæmia).

Death occurred two weeks later, and a post-mortem examination was carried out by Dr. Reye. In the liver the portal tracts were found to be infiltrated by lymphocytes; similar cells were present in the sinusoids in slightly greater numbers than usual. The Malpighian bodies in the spleen were not unduly large; there was a slight excess of lymphocytes in the pulp, and hæmosiderin was abundant. Fatty change was found in the myocardium. The lungs, kidneys and adrenals were normal, as were the cervical and mesenteric lymph nodes. In marrow from the femur, there were considerable portions in which cells were entirely lacking, the spaces between the reticulum being occupied by œdema fluid. Hæmorrhages were not infrequent in these aplastic areas. Only small, widely separated areas were cellular, and though myelocytes were present there the predominating cells were lymphocytes. A similar though less pronounced aplasia was present in the sternal marrow; occasional erythropoietic cells could be recognized in this part. The marrow in the ribs was similar to that of the sternum, but nucleated red cells were rather more plentiful.

Dr. Dods said that there was an appreciable difference in the appearances of the biopsy and autopsy specimens of the marrow in this case. While the biopsy specimen was hypercellular and lymphocytoid cells predominated, in the autopsy material was found an almost uniform hypoplasia, in parts entire aplasia, with only occasional cellular foci. Despite the infiltration of the portal tracts with lymphocytes, and the slight excess of lymphoid cells in the splenic pulp, there was not sufficient evidence to warrant the diagnosis of leucosis. Rather did it seem that there had been a primary disease of the marrow elements, more particularly the erythropoietic, with a secondary replacement in isolated areas by cells of a lymphoid type. At least lymphoid infiltrations in atrophic organs were not uncommon. The abundant hæmosiderin in the spleen would be accounted for by inability to use iron stores.

Hypoplastic Anæmia.

Dr. Dods next showed a male patient, the only child of Australian parents, who had been born at full term; his mother stated that she was well throughout her pregnancy and that there was no family history of blood dyscrasia or other significant illness. The child was free from all infections and apparently in excellent health until about the age of five months, when he was noticed to be pale. At the age of eleven months rapidly increasing pallor prompted his admission to the Royal Alexandra Hospital for Children. At this time his pallor was extreme, his mucous membranes were almost colourless and his respirations were rapid and shallow. His weight was thirteen and a half pounds, his liver margin extended about one inch below the right costal margin, his spleen was not palpable, and there was no obvious enlargement of his lymphatic glands. The erythrocytes numbered 790,000 per cubic millimetre and the hæmoglobin value, less than three grammes *per centum*, was too low for accurate estimation; less than 0·5% of the erythrocytes were reticulocytes, and no nucleated red blood cells were noted. The leucocytes were mature and numbered 9,000 per cubic millimetre; the platelets exceeded 500,000 per cubic millimetre. The child's blood group was A_2, and his erythrocytes were found to be Rh-positive.

After a continuous transfusion of 420 millilitres of citrated blood (more than 30 millilitres of blood per pound of body weight), the red blood cell count reached 3,970,000 per cubic millimetre and the hæmoglobin value 13·8 grammes *per centum*. Within two weeks the number of erythrocytes had fallen to such a level that another blood transfusion was necessary; this transfusion of 240 millilitres of citrated blood (approximately 18 millilitres of blood per pound of body weight) raised the erythrocyte and hæmoglobin levels to approximately the same figures as after the first transfusion. Dr. Dods said that within three weeks another retrogression in his blood picture prompted another blood transfusion, and over the next fifteen months of this infant's life this sequence of events was repeated with monotonous regularity. At no stage had there been any evidence of increased hæmolysis; the number of reticulocytes had never risen as high as 0·5% of the erythrocytes, no nucleated red blood cells had been found, no excess of urobilinogen had been detected in the urine, and the Van den Bergh test had failed to produce a reaction. The fragility of the red blood cells had been estimated as normal on three occasions. There had been little or no alteration or variation in the size or shape of the erythrocytes. The mean corpuscular volume was estimated at 82 cubic microns.

Dr. Dods went on to say that throughout the illness the leucocytes had remained mature, their total number varying from 6,000 to 12,000 per cubic millimetre, and the number of platelets had never fallen below 250,000 per cubic millimetre. The blood failed to react to the Wassermann and Kline tests. No ova or parasites had been detected in the stools. Repeated examinations of the urine had revealed no abnormality. Radiographic examination of the skull and long bones had revealed no significant abnormality. About one year prior to the meeting a series of therapeutic trials of various liver preparations and of iron in adequate doses failed to produce any reticulocyte response or improvement. Thyreoid extract, vitamin *C* and total vitamin *B* complex also failed to have any obvious therapeutic effects. In view of these therapeutic failures, of the absence of any history of drug or chemical hazards, of the absence of any obvious infection or renal impairment and of the absence of any evidence suggestive of leucosis or reticuloendotheliosis, this child's illness was regarded as hypoplastic anæmia of indeterminate ætiology, and arrangements were made for an examination of the marrow by means of sternal trephine and smears. This examination was carried out in June, 1945, by Dr. R. D. K. Reye, who reported that the specimens were not entirely satisfactory, owing to the infiltration of a great deal of traumatic blood, but occasional small islands of marrow were present, and these were composed almost entirely of myeolocytes and intermediate stages of the granular series of leucocytes. Only a small number of erythropoietic cells, all at the stage of normoblastic development, were to be found. Megakaryocytes were present in satisfactory numbers. In the blood which everywhere surrounded these small portions of marrow were a number of lymphocytes and segmented granular leucocytes. Dr. Reye had commented that the presence of so much blood made interpretation difficult. Lymphocytes were present in greater numbers than normal, but as they were all of a mature type, and as they were found almost entirely in the blood and associated with mature granular leucocytes, it seemed fairly safe to assume that they did not represent any lymphocytic infiltration of the marrow. There was, however, definite evidence in the small portions of marrow available for study of a pronounced hypoplasia, amounting almost to an aplasia, of the erythropoietic elements, while the myelopoietic and platelet-forming cells were present in normal proportions. The anæmia in this instance seemed to fall into that rare group in which the red cell series alone was involved, and in this way the circulating blood was an exact image of the state of the marrow. Whatever the inhibitory factor might be, it seemed to involve the earliest forms of the erythrocytes, and it did not appear likely that such an aplastic picture could be accounted for by any hypothetical splenic inhibition.

Dr. Dods said that the child had been given repeated blood transfusions over a period of nearly two years. Dr. Joan Tom had administered more than twenty transfusions, representing a total of more than eight litres of blood during the past twenty-one months without any significant transfusion reaction. Both splenectomy, which seemed illogical but had been reported as a successful form of treatment in certain types of hypoplastic anæmia, and fœtal marrow grafting, which had been reported as successful in some hands, had been considered. At the present time the child was being supported by blood transfusions, in the rather vain hope that his medullary or even his extramedullary centres of erythropoiesis might recover.

Congenital Ectodermal Dysplasia.

Dr. Dods then showed a male patient, who had been referred for an opinion at the age of two years because of his dry skin and his unduly old appearance. No obvious infantilism or hypogonadism was present and his trunk-limb

proportions were normal for his age; but his weight of 22 pounds and his height of 29 inches were the weight and height of an infant of about twelve months. His dry skin, his sparse and brittle hair and his rather wizened face gave him an appearance of premature senility, which was further emphasized by the fact that, apart from one small and sharply pointed lateral incisor, he was edentulous. An X-ray examination revealed several unerupted teeth in his upper jaw, but a complete absence of any teeth in his mandible. Radiographic examination suggested no retardation of ossification of his skeleton; his blood pressure was within normal limits and his fundi and retinal vessels appeared normal. A glucose tolerance test suggested no obvious disturbance of carbohydrate metabolism, and his serum failed to react to the Wassermann test. Some simple tests of his sweating mechanism suggested a failure of function of his sweat glands and an associated heat intolerance. Two hot-water bottles and some extra blankets raised his rectal temperature from the normal level to 103° F., and no obvious sweating could be detected during or after this process. His mother found it necessary to sponge him frequently during the hot weather and to carry water and a cloth for this purpose on hot days.

Dr. Dods said that congenital anomalies of one or more of the tissues which arose from the embryonic ectoderm were probably relatively common. The tissues involved might include the nails, hair, teeth, epidermis, sweat glands and pilo-sebaceous apparatus, certain portions of the ear and eye, the nervous system and the mucous membranes of the mouth, naso-pharynx and anus. A number of references to such anomalies, particularly defects of a single tissue, might be found in the dental and dermatological literature; but combinations of multiple defects of this type seemed to be relatively uncommon. Some observers had pointed out that the facial appearance of these children might suggest progeria, the premature senility of childhood. The child under discussion exhibited several of the classical features of ectodermal dysplasia—sparse and brittle hair, some dental aplasia, a dry skin, an appearance of premature senility, heat intolerance and an apparent absence of functioning sweat glands.

Lead Poisoning.

Dr. Dods's next patient was a boy, aged four years, who had been admitted to hospital because of repeated attacks of umbilical pain which had occurred over the past six months and had become much more intense during the past two weeks. The mother stated that the boy had suffered from anorexia and a failure to gain weight over the past twelve months and had been sleepless and irritable over the past six months.

During his first forty-eight hours in hospital the child suffered several attacks of abdominal pain, which were accompanied by some vomiting; his temperature remained normal and his pulse rate was within normal limits. He was pale, irritable and unduly excitable, his deep reflexes were exaggerated and there was some tremor of his hands; otherwise examination gave essentially negative results. A blood count gave the following information: the erythrocytes numbered 3,800,000 per cubic millimetre, the hæmoglobin value was 8·9 grammes *per centum*, and three stippled red blood cells were counted in every 100 red blood cells; the leucocytes numbered 10,500 per millilitre. The cerebro-spinal fluid protein content was estimated at 100 milligrammes per 100 millilitres, the fluid being normal in other respects. An X-ray examination of the long bones revealed a band of much increased density at the ends of the diaphyses of all the long bones.

After a few days his irritability and undue excitability subsided and he exhibited a drooping, expressionless face suggesting the myopathic facies. His blood pressure was not elevated, and both chemical and microscopic examination of his urine gave negative results. The parents admitted that this boy had been "chewing his lead soldiers" for the past eight to ten months.

Scurvy.

Dr. Dods then showed a female child, aged twelve months, who had apparently been quite well until two weeks before her admission to hospital, when she seemed irritable, and would not crawl or put her feet to the ground. Her mother admitted that she had not given this infant any orange juice since an attack of gastro-enteritis which had occurred four months previously. The clinical and radiographic picture was that of scurvy, and the capillary resistance test gave a positive result.

After three days' treatment with orange juice (three ounces per day) and ascorbic acid (100 milligrammes per day) the infant showed a pronounced improvement, the capillary resistance test gave negative results and the urine contained approximately five milligrammes of ascorbic acid in each twenty millilitres.

Pink Disease.

The next patient shown by Dr. Dods was a child, aged two years, who had suffered a severe and prolonged attack of pink disease which had been associated with infections of various tissues. The infections had included pustules and cellulitis, two attacks of pneumonia and a severe and persistent infection of the mouth, tongue and gums which had resulted in the loss of several teeth. Sulphonamides and penicillin had been used in various ways, and after a severe illness of more than four months' duration the child appeared to be recovering.

Œsophageal Achalasia.

DR. L. G. TAIT showed a male child, aged eight years, who had a history of vomiting during or after meals, epigastric pain and loss of weight. On examination the child was seen to be thin and pale; he weighed two stone thirteen pounds. During his stay in hospital vomiting was not persistent, and at one stage he had not vomited for several weeks. At this stage his diet included solids. At the time of the meeting the child was taking the ward diet and was vomiting after some meals.

(To be continued.)

NOTICE.

THE General Secretary of the Federal Council of the British Medical Association in Australia has announced that the following medical practitioners have been released from full-time duty with His Majesty's Forces and have resumed, or will resume, civil practice as from the dates mentioned:

Dr. R. E. Dunn, 229, Macquarie Street, Sydney (April 22, 1946).
Dr. Curzon W. Furner, Warrah House, Crown Street, Newcastle (May 6, 1946).
Dr. W. A. Hugh Smith, 195, Macquarie Street, Sydney (June 4, 1946).
Dr. C. P. Ley, 353, New South Head Road, Double Bay (February 8, 1946).
Dr. H. M. Owen, 175, Macquarie Street, Sydney (May 24, 1946).
Dr. C. V. Salisbury, 217, Macquarie Street, Sydney (May 27, 1946).
Dr. M. J. L. Stening, 143, Macquarie Street, Sydney (February 1, 1946).
Dr. M. Sterling Levis, 229, Macquarie Street, Sydney (June 1, 1946).

Medical Societies.

THE MEDICAL DEFENCE SOCIETY OF QUEENSLAND.

THE annual meeting of the Medical Defence Society of Queensland was held at British Medical Association House, 225, Wickham Terrace, Brisbane, on February 15, 1946, Dr. Alex. Marks, the president, in the chair.

Apologies were received from Dr. S. F. McDonald, Dr. Neville Sutton, Dr. R. G. Quinn, Dr. L. J. J. Nye and Dr. G. P. Dixon.

Minutes.

Minutes of the previous annual meeting were read and confirmed.

Annual Report and Balance Sheet.

On the motion of the president, seconded by Dr. G. W. Macartney, the annual report of the council and balance sheet for the year ended December 31, 1945, were received and adopted. The report is as follows.

The council has pleasure in presenting the annual report of the Medical Defence Society of Queensland for the year ending December 31, 1945.

Membership.

The Branch has now a membership of 467, as against 441 last year, making a gain of 26 members.

During the year 46 new members were elected; our losses were: deceased, 10; left the State, 7; struck off as unfinancial, 3; making a total of 20.

Obituary.

It is with deep regret that we record the following losses by death: Dr. Clive L. Paine, Dr. A. C. F. Halford, Dr. R. Graham Brown, Dr. W. A. Fraser, Dr. Alan R. East, Dr. F. W. Harlin, Dr. St. A. W. McDowall, Dr. P. M. Davidson, Sir David Hardie, Dr. J. E. Overstead.

Office Bearers and Councillors for 1945.

The following were reelected: *President,* Dr. Alex. H. Marks; *Vice-President,* Dr. S. F. McDonald; *Honorary Secretary,* Dr. Neville G. Sutton; *Honorary Treasurer,* Dr. L. P. Winterbotham; *Councillors,* Dr. A. G. Anderson, Dr. Gavin H. Cameron, Dr. G. P. Dixon, Dr. E. R. Row, Dr. John Hardie, Dr. G. W. Macartney, Dr. R. A. G. Malcolm.

The retiring members were Dr. E. R. Row and Dr. John Hardie, both of whom were reelected. Dr. G. W. Macartney was elected to fill the vacancy caused by the death of Dr. Kenneth Wilson.

Medico-Legal.

The following matters were dealt with by the society's solicitors:

1. Advice was received that an action taken against a member was settled out of court. The legal expenses involved by the society amounted to £62 7s.

2. The medical superintendent of a hospital reported a case which had occurred under his direction and personal treatment, namely, fracture of both bones of the right forearm near the wrist joint in a boy, the injury having been reduced and plastered on the day of its occurrence. After ten days the medical superintendent advised the mother to take the boy to a specialist in Brisbane, which she did, and subsequently lodged a complaint against the medical superintendent with the Hospitals Board.

The solicitors advised on the suggested reply to the Hospitals Board denying any negligence in the case.

Nothing further has been heard of the matter.

3. A threatened case of alleged negligence concerning his wife was referred to the Medical Board of Queensland by Mr. X and was submitted to the solicitors on behalf of the member concerned. The complaint was investigated by the board and was dismissed on the grounds that the evidence was not sufficiently established to provide a *prima facie* case.

4. Legal representation was provided by the society to watch the interests of a member in regard to an inquest into the death of a child, which had been adversely reported, from the doctor's point of view, in a lay newspaper. The inquest was adjourned, and when resumed a satisfactory report was published in the daily Press of the doctor's evidence in the case, strongly contradicting the claim of the father of the child that he had been casual. The inquest was closed without further evidence being called.

Responsibility of Service Medical Officers.

The question was raised by a member as to whether a member of the services may claim (immediately after or at the time of his discharge) on a service medical officer for alleged negligence, and if such were the case, if the society would assist the defence of its member. Inquiries were instituted both with regard to the official attitude of the army and the air force, but without result.

Indemnity Insurance.

It will be noted that the indemnity insurance provided by arrangement with the London and Counties Medical Protection Society is receiving considerable support. Last year the number of members who took advantage of the voluntary security provided was 169, whereas the number this year has increased to 187.

Finance.

The total assets of the society amount to £7,297 12s. 6d., the sum of £6,563 18s. being invested in Commonwealth Government bonds and stock, and the remainder, bank balances and cash in hand.

The income for the year was £500 13s., made up of entrance fees and membership subscriptions, £260 12s., interest from Commonwealth Loan and Savings Bank, £240 1s.

The total general expenditure, including secretary's salary, audit fee and rent, amounted to £47 0s. 10d., and legal expenses were £111 3s. 6d.

The net surplus for the year was £342 8s. 8d.

ALEX. H. MARKS,
President.

Election of Councillors.

Dr. Alex. Marks, Dr. S. F. McDonald and Dr. L. P. Winterbotham, being the only nominees, were reelected members of the Council for the year 1946.

Election of Auditors.

Messrs. R. G. Groom and Company, Chartered Accountants (Aust.) were reelected auditors for the ensuing year.

At a meeting of the Council of the Medical Defence Society of Queensland, which followed the annual meeting, the following office bearers were elected for 1946: *President,* Dr. G. P. Dixon, C.B.E., V.D.; *Vice-President,* Dr. S. F. McDonald; *Honorary Secretary,* Dr. Neville G. Sutton; *Honorary Treasurer,* Dr. L. P. Winterbotham.

Retiring President.

Dr. Alex. Marks, C.B.E., D.S.O., V.D., who had held the position of president for the past fifteen years, and had been a member of the Council for a much longer period, signified that he did not wish to accept again nomination for the presidency.

It was resolved that the Council record its deep appreciation and thanks to Dr. Marks for the very valuable service he had rendered to the society during the past fifteen years as president, and also as a member of the Council, and express the wish that he might have many years of happiness in his retirement from active practice.

THE MEDICAL SCIENCES CLUB OF SOUTH AUSTRALIA.

A MEETING of the Medical Sciences Club of South Australia was held at the Institute of Medical and Veterinary Science, Adelaide, on September 7, 1945.

Climatic Factors and the Nutrition of Herbage Plants.

Professor H. C. Trumble presented a paper entitled: "Climatic Factors and the Nutrition of Herbage Plants." He said that the nutrition of herbage plants posed questions of greater complexity than that of individual plant species owing to the association and competition of widely differing forms in pastures and their varying responses to climatic and soil factors.

The unit factors of climate, which might govern the rate of absorption of specific soil nutrients and subsequent interactions within the plant, were those of moisture, temperature and light. Recent work in agro-climatology had sought to evaluate these factors in such a way as to make possible the measurement of real effects and interactions concerning responses by the plant. The question of effectiveness was especially important in the case of all three factors in South Australia. Growth, and to a large degree, mineral absorption by the pasture, depended on the incidence of temperature and light, in relation to the available soil moisture supply.

Competition in the pasture association might be for light, water, specific nutrients, oxygen for root respiration, and in the case of legumes, nitrogen for biological fixation. A reduction of light to 10% of normal intensity produced one-quarter to one-third of the yield; at ground level there was frequently only 5% of that above the sward. The depression of herbage legumes by associated grasses might vary from slight to total exclusion, according to climatic and soil factors and pasture management. Total suppression, as frequently occurred, exercised major effects on the subsequent available nitrogen level of most soils in areas of comparatively high rainfall.

The nutritional complex was essentially dynamic and was dependent not only on soil factors, but on variations in the climatic environment and the inter-relationships of different species and strains within the sward. Increasing attention had been paid to the colloids of the soil, especially in regard to the replacement of cations such as those of calcium, magnesium, potassium and sodium by hydrogen. The internal reactions within the plant were, however, possibly more important as a subject for future investigation than those external to the plant. In this regard further investigation was needed concerning organic acid metabolism, the relation of enzyme and catalytic systems to external factors and their bearing on biological oxidation reduction systems.

Exploiting the Higher Fungi.

Professor J. B. Cleland presented a paper entitled: "Exploiting the Higher Fungi." He said that obviously the first exploitation of the higher fungi had been in the shape of food, and later for criminal purposes in Roman times. Then some fruiting bodies were used as tinder, for razor strops and other purposes such as hæmostasis. The spherical spores (about 5 by 7 microns in diameter) of one of the puff balls had been used to show the readiness with which solid particles might be inhaled into the recesses of the lungs.

Recently work in England had been directed to the search for bacteriostatic properties among them, and at Sir Howard Florey's suggestion, Miss N. Atkinson in the Institute of Medical and Veterinary Science had been testing some of the local Agarics and other Basidiomycetes. A few of these, particularly some of the purple or violet species of *Cortinarius*, had shown considerable activity in this respect.

Naval, Military and Air Force.

APPOINTMENTS.

THE undermentioned appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Number 97, of May 23, 1946.

NAVAL FORCES OF THE COMMONWEALTH.

Permanent Naval Forces of the Commonwealth (Sea-Going Forces).

Fixing Rates of Pay.—Surgeon Commanders David Shields Prentice and Lionel Lockwood, M.V.O., D.S.C., are paid the rates of pay and allowances prescribed in the Naval Financial Regulations for Surgeon Captain (on promotion) whilst acting in that rank, dated 3rd January, 1946, and 14th January, 1946, respectively.

Emergency List.

Termination of Appointment.—The appointment of Surgeon Lieutenant-Commander Athol Herbert Robertson for temporary service is terminated, dated 18th February, 1946.

Citizen Naval Forces of the Commonwealth.

Royal Australian Naval Reserve.

Promotion.—Surgeon Lieutenant James Stuart Guest, O.B.E., is promoted to the rank of Acting Surgeon Lieutenant-Commander, dated 31st March, 1946.

AUSTRALIAN MILITARY FORCES.

Australian Army Medical Corps.

SX21586 Lieutenant-Colonel C. B. Sangster relinquishes command of 121st Australian General Hospital (Australian Imperial Force) and is appointed to command No. 105 (Adelaide) Military Hospital, 8th March, 1946.

SX2910 Lieutenant-Colonel W. M. Irwin relinquishes command of 17th Australian Field Ambulance and is appointed to command 121st Australian General Hospital (Australian Imperial Force), 8th March, 1946.

S3256 Lieutenant-Colonel (Temporary Colonel) F. N. Le Messurier, D.S.O., relinquishes command of No. 105 (Adelaide) Military Hospital and is placed upon the Regimental Supernumerary List, 8th March, 1946.

NX130975 Lieutenant-Colonel H. M. Owen relinquishes command of 107th Australian General Hospital and is placed upon the Regimental Supernumerary List, 8th March, 1946.

WX29 Lieutenant-Colonel R. R. Andrew relinquishes command of 102nd Australian Casualty Clearing Station and is placed upon the Regimental Supernumerary List, 8th March, 1946.

VX132560 Lieutenant-Colonel R. G. Worcester, E.D., relinquishes command of 2nd/9th Australian General Hospital and is placed upon the Regimental Supernumerary List, 28th February, 1946.

VX111102 Lieutenant-Colonel (Temporary Colonel) D. Zacharin relinquishes command of 106th Australian General Hospital and is placed upon the Regimental Supernumerary List, 28th February, 1946.

VX114275 Lieutenant-Colonel (Temporary Colonel) J. J. Black, D.S.O., V.D., relinquishes command of 118th Australian General Hospital and is placed upon the Regimental Supernumerary List, 9th January, 1946, is removed from the Regimental Supernumerary List, and is appointed to command 106th Australian General Hospital, 28th February, 1946.

The notifications respecting VX114275 Lieutenant-Colonel (Temporary Colonel) J. J. Black, D.S.O., V.D., which appeared in Executive Minute Nos. 53 and 54 of 1946 and promulgated in *Commonwealth Gazette* No. 53 of 1946 are withdrawn.

QX6154 Lieutenant-Colonel D. G. Croll ceases to be seconded and is placed upon the Regimental Supernumerary List, 28th February, 1946.

NX34968 Lieutenant-Colonel R. F. K. West is placed upon the Regimental Supernumerary List, 8th March, 1946.

Captains (Temporary Majors) WX3356 A. J. King and VX193 N. R. Godby are transferred from the Permanent Supernumerary List (Australian Army Medical Corps), 6th March, 1946.

NX439 Colonel (Temporary Brigadier) W. P. MacCallum, D.S.O., M.C., relinquishes the rank of Temporary Brigadier and is transferred to the Reserve of Officers (Australian Army Medical Corps) with the rank of Colonel and is granted the rank of Honorary Brigadier, 8th March, 1946.

NX102476 Major (Temporary Lieutenant-Colonel) J. F. N. Thomas relinquishes the rank of Temporary Lieutenant-Colonel and is transferred to the Reserve of Officers (Australian Army Medical Corps) with the rank of Major and is granted the rank of Honorary Lieutenant-Colonel, 7th March, 1946.

The following officers are transferred to the Reserve of Officers (Australian Army Medical Corps): Lieutenant-Colonels NX115447 J. Davis, 25th January, 1946, VX48607 T. C. Backhouse, 1st March, 1946, NX103436 A. H. Gee, 6th March, 1946, VX117117 Sir H. G. Smith, V.D., 2nd March, 1946, and NX70154 L. S. Loewenthal, 23rd February, 1946.

To be Lieutenant-Colonel, 27th September, 1945.—NX130975 Major (Temporary Lieutenant-Colonel) H. M. Owen.

101st Australian General Hospital (Australian Imperial Force): To be Temporary Major, 7th March, 1946.—NX174912 Captain J. C. Dick.

No 112 *(Brisbane) Military Hospital: To be Temporary Major, 7th March*, 1946.—VX112205 Captain C. L. Coghlan.

2nd Australian Camp Hospital.—QX40890 Major T. K. Durbridge is placed upon the Regimental Supernumerary List, 12th February, 1946. NX208067 Captain B. C. Mendelsohn is transferred from Australian Army Medical Corps (Medical) Reinforcements with regimental seniority as from date of transfer, 28th December, 1945.

79th Australian Camp Hospital.—NX208062 Captain L. F. Breitner is transferred from Australian Army Medical Corps (Medical) Reinforcements with regimental seniority as from date of transfer, 28th December, 1945.

Inter-Service Medical Wing Demobilization Centres (Australian Military Forces Component).—NX208049 Captain J. L. Kelly is transferred from Australian Army Medical Corps (Medical) Reinforcements with regimental seniority as from date of transfer, 24th December, 1945.

The following officers are transferred to Australian Army Medical Corps, 6th March, 1946: Captains (Temporary Majors WX3356 A. J. King, and VX193 N. R. Godby.

Reserve of Officers.

Australian Army Medical Corps.

The undermentioned officers are transferred to the Reserve of Officers with effect from the dates indicated, and where applicable cease to be seconded. Officers holding temporary rank relinquish such temporary rank on the date of transfer to the Reserve of Officers:—

VX104012 Major H. V. Francis, 7th March, 1946.

Captains NX70377 R. H. Kaines, 5th March, 1946; P440 A. G. Shroeder, 7th March, 1946; VX114232 W. S. Smith, 2nd March, 1946; WX31390 A. J. Beaumont, 5th March, 1946, and WX17035 C. Perec, 2nd March, 1946.

2nd/6th Australian General Hospital.—WX11180 Major A. Stoller, 4th January, 1946.

101st Australian General Hospital (Australian Imperial Force).—NX138488 Captain L. L. Shortland, 7th March, 1946.

No. 102 *(Holland Park) Military Hospital.*—QX58749 Captain F. C. S. Dittmer, 26th February, 1946.

103rd Australian General Hospital.—NX35110 Major H. O. Lancaster, 1st March, 1946.

No. 105 *(Adelaide) Military Hospital.*—SX27205 Captain (Temporary Major) J. D. Fotheringham, M.C., 6th March, 1946, and V146515 Captain A. J. Christophers, 8th March, 1946.

No. 113 *(Concord) Military Hospital.*—VX23711 Major G. V. Rudd, 2nd March, 1946.

No. 114 *(Goulburn) Military Hospital.*—NX147828 Captain J. W. Quilter, 2nd March, 1946.

121st Australian General Hospital (Australian Imperial Force).—SX27743 Major I. S. Magarey, 8th March, 1946.

4th Australian Camp Hospital.—VX138704 Captain W. R. Moloney, 7th March, 1946.

10th Australian Camp Hospital.—NX202333 Captain C. P. V. Evans, 28th February, 1946.

101st Australian Convalescent Depot (Australian Imperial Force).—NX107173 Captain L. H. McMahon, 5th March, 1946.

109th Australian Convalescent Depot.—WX33112 Captain G. L. Myles, 12th January, 1946.

102nd Australian Casualty Clearing Station (Australian Imperial Force).—Majors NX34947 R. P. Melville, 6th March, 1946, and VX63137 B. A. Baker, 5th March, 1946.

105th Australian Casualty Clearing Station (Australian Imperial Force).—VX81142 Captain G. H. Thompson, 8th March, 1946.

Inter-Service Medical Wing Demobilization Centres (Australian Military Forces Component).—Captains QX48886 J. V. Hynes, 23rd February, 1946, and NX136775 J. V. Champain, 28th February, 1946.

The undermentioned officers are transferred to the Reserve of Officers with effect from the dates indicated, and where applicable cease to be seconded. Officers holding temporary rank relinquish such temporary rank on the date of transfer to the Reserve of Officers and are granted from such date honorary rank on the Reserve of Officers equivalent to the temporary rank relinquished:

NX77303 Captain (Temporary Major) J. A. Paul, 27th February, 1946.

2nd/11th Australian General Hospital.—VX149278 Captain (Temporary Major) C. F. H. Pyman, 7th March, 1946.

121st Australian General Hospital (Australian Imperial Force).—SX2911 Captain (Temporary Major) G. McL. Turnbull, 6th March, 1946.

2nd Australian Field Ambulance (Australian Imperial Force).—NX107171 Captain (Temporary Major) J. K. MacKenzie, 5th March, 1946.

Retired List.

Australian Army Medical Corps.

The undermentioned officer is placed upon the Retired List on the date indicated:

QX45275 Captain F. K. L. Hossack, 7th March, 1946.

ROYAL AUSTRALIAN AIR FORCE.

Citizen Air Force: Medical Branch.

The appointments of the following officers are terminated on demobilization with effect from the dates indicated: (Temporary Squadron Leaders) T. F. Ahern (263339), 4th February, 1946, F. J. Collett (263257), 5th February, 1946, C. V. Newton (261989), 13th February, 1946, S. M. K. Morson (262063), 18th February, 1946, (Temporary Flight Lieutenants) L. E. Goldsmith (264853), W. J. P. Woolcock (273946), 11th February, 1946, Flying Officer R. H. Wharton (139892), 14th February, 1946.

The appointment of Temporary Squadron Leader W. G. Jasper (263897) is terminated on demobilization with effect from 15th January, 1946.

The notification in respect of the confirmation of the probationary appointments of the following Flight Lieutenants, appearing in *Commonwealth of Australia Gazette* No. 18, dated 13th January, 1946, is cancelled: M. J. Etheridge (257503), J. Kargotich (297400), F. A. J. Hetherington (6381), J. N. Brown (267083), K. G. Howsam (257504), D. Hemming-Jones (277460), T. H. Gavin (277462).—(Ex. Min. No. 130—Approved 10th May, 1946.)

The appointments of the following officers are terminated on demobilization with effect from the dates indicated: Temporary Squadron Leader N. Oldfield (282296), 29th January, 1946, (Temporary Flight Lieutenants) T. H. Strong (416900), 11th January, 1946, C. W. Kingston (273945), 29th January, 1946, Temporary Squadron Leader J. S. D. Sweeting (253253), 4th December, 1945, (Temporary Flight Lieutenant) Acting Squadron Leader H. R. Worth (253893), (Temporary Squadron Leaders) R. G. Weaver (261460), 29th January, 1946, J. F. Ziegler (257480), 30th January, 1946, W. A. McKay (253472), 15th February, 1946, (Temporary Squadron Leaders) I. R. Barrie (263252), 3rd December, 1945, J. Hall-Johnston (262741), 17th December, 1945, E. F. Langley (252868), 24th December, 1945, (Temporary Flight Lieutenants) R. Roxburgh (267591), 12th December, 1945, T. H. Walker (263732), 28th December, 1945.

Australian Medical Board Proceedings.

QUEENSLAND.

THE following statement was published in the *Queensland Government Gazette*, Number 129, of May 18, 1946.

Medical Assessment Tribunal.

Between

THE MEDICAL BOARD OF QUEENSLAND, Prosecutor,

and

DOCTOR ALEXANDER WILLIAM BRENNAN STARK, Respondent.

The charge made by the Medical Board of Queensland against the abovenamed Doctor Alexander William Brennan Stark specified in the notice dated the 18th February, 1946, given by the Registrar of the said The Medical Board of Queensland to the said Doctor Alexander William Brennan Stark, was heard by me as the Medical Assessment Tribunal, constituted under *"The Medical Acts, 1939 to 1940"* (assisted by Jack Mowbray Thompson, M.D., M.S., and Alexander Hammett Marks, M.D., B.S., as assessors), on the twenty-ninth day of March, 1946. At the hearing, Mr. Lynam of Counsel appeared for The Medical Board of Queensland and Mr. Real of Counsel for the respondent, Doctor Alexander William Brennan Stark. Oral evidence was given for The Medical Board of Queensland by Bernard Rooney and also documentary evidence. No evidence was given by or on behalf of the respondent.

I find the following facts:

The respondent is and was at all material times a medical practitioner as defined in section 4 of *"The Medical Acts, 1939 to 1940"*. He graduated in the University of Sydney with the degrees of M.B., Ch.M. in the year 1917. He was first registered in Queensland on the 13th May, 1920. Thereafter, he engaged in practice as a medical practitioner in Brisbane, at Auchenflower, and later at 50 High Street, Toowong, Brisbane.

The witness, Bernard Rooney, was married to Gabrielle Jean Rooney on the 15th June, 1935. Rooney was then aged 22 and his wife 17 years. On his marriage, Rooney became a member of a Friendly Society's Lodge of which the respondent was the doctor. The respondent's duties as such doctor were taken over in 1937 by Doctor Crouch, but late in 1941 or early in 1942, the respondent again became the doctor of the said Friendly Society's Lodge and was the medical attendant of the wife and family of the said Bernard Rooney at all material times thereafter until the end of February or early in March, 1945.

The matrimonial home of the said Bernard Rooney was, at all material times, from the year 1936 in Durham Street, St. Lucia, except for a period of about 11 months in 1939-1940. There were three children born of the marriage of Bernard Rooney and Gabrielle Jean Rooney, born respectively on the 4th November, 1937, the 7th February, 1943, and the 14th January, 1945. The respondent was the medical attendant of Mrs. Rooney at her confinements in respect of the birth of the second and third children.

The said Bernard Rooney was a timber worker by occupation. He enlisted in the Australian Imperial Force on the 21st January, 1942, and thus left for active service in New Guinea on the 16th October, 1942. At the time when he went on active service, the relations between Rooney and his wife were harmonious, and had been generally harmonious except for quarrels on isolated occasions. Whilst Rooney was on active service in New Guinea his wife sent to him letters couched in the terms of the deepest affection. The second child of the marriage was born whilst Rooney was on active service in New Guinea and the respondent must have been well aware that Rooney was then, and at all material times thereafter, serving with the Australian Military Forces.

Rooney returned home on 48 days' leave in May, 1944. When he returned, it was apparent that the attitude of his wife to him had changed. She was cool towards him and irritable. There was nothing in the conduct of Rooney to his wife to explain or justify her change of attitude towards him. After his 48 days' leave, Rooney went on military service to a training camp at Wagga in the State of New South Wales.

In July or August, 1944, Mrs. Rooney informed the respondent that she loved him and the respondent told Mrs. Rooney that he loved her. At the time of this profession of love, Mrs. Rooney was to the knowledge of the respondent pregnant and was his patient, and she continued to be his patient at all times thereafter until after the birth of her third child. From time to time during the year 1944 the respondent also attended as a medical practitioner one of the two elder children of Mr. and Mrs. Rooney.

Rooney was absent from Queensland on military service from July, 1944, until January, 1945. He returned to Brisbane after receiving a letter dated the 8th January, 1945, from his wife, and on arrival in Brisbane made arrangements for his wife to enter hospital for her confinement. After the birth of the child he had to return, and did return immediately to Sydney on military service.

Late in January or early in February, 1945, the respondent insisted to Mrs. Rooney that she should tell her husband that he, the respondent, and Mrs. Rooney loved each other. This Mrs. Rooney did by letter to Rooney dated the 4th February, 1945, which was received by Rooney whilst in a military camp near Sydney. Rooney thereupon immediately returned to Brisbane, and after conversations with Mrs. Rooney and with the respondent's wife, Rooney

communicated with the respondent by telephone on the sixth day of February, 1945, and asked the respondent to come to the matrimonial home of the Rooneys. The respondent came to the home and Rooney said to him, "What about leaving my wife alone", to which the respondent replied, "I can't". Rooney said: "As far as I am concerned, there is no question of divorce. If my wife leaves the house I will take the kiddies off her." The respondent answered: "You can't take the youngest baby. It is being breast fed." Rooney replied: "There will be no question of a tug-of-war. I will come back and legally take the kiddies off her."

A few minutes later the respondent left Rooney's house. Rooney returned to Sydney on military duty next morning, and was absent from Queensland on military duty until the 1st June, 1945, when he arrived in Brisbane on 24 days' leave.

In June, 1945, Rooney made repeated efforts up to the 18th June to effect a reconciliation with his wife, but failed.

On or about the 20th June, 1945, Rooney spoke to the respondent by telephone. He said: "Is that Doctor Stark?" The respondent replied: "Yes." Rooney said: "What are your intentions towards my wife?" Stark replied: "I am going to take her away." Rooney said: "Don't you think you have dragged her down low enough now?" The respondent answered: "Well, you won't give her a divorce and I have no alternative."

At the end of February, 1945, or early in March, 1945, Rooney gave instructions to the Secretary of his Friendly Society's Lodge in Brisbane to have his wife and family taken off the respondent's list of lodge patients. There was no evidence before me that the respondent at any time ceased to be the professional medical attendant of Mrs. Rooney.

On the third day of July, 1945, in Hill End Park, Orleigh Street, Hill End, Brisbane, the respondent committed adultery with the said Mrs. Gabrielle Jean Rooney.

Thereafter Rooney commenced an action in the Supreme Court of Queensland, No. 706 of 1945, against his wife and the respondent, in which he claimed the dissolution of his marriage with his wife on the ground of her adultery with the respondent, and also claimed £5,000 damages from the respondent. The issue of the adultery of the respondent and Mrs. Rooney was not contested by the respondent or Mrs. Rooney. The said action was tried at Brisbane before a judge with a jury on the twenty-fourth, twenty-fifth and twenty-eighth days of September, 1945, and the jury found, *inter alia*, that the respondent had committed adultery with Mrs. Rooney on the third day of July, 1945, as above-mentioned and awarded £2,500 damages against the respondent. On the findings of the jury judgement nisi for the dissolution of the marriage between Mr. and Mrs. Rooney was given on the twenty-eighth day of September, 1945, which judgement was later made absolute. The respondent was ordered to pay the plaintiff's costs of the action and to pay the damages awarded by the jury into court to await disposal by the court at or after the date of the judgement absolute.

I find that in becoming the open and declared lover of Mrs. Rooney in or about the month of July or August, 1944, in the circumstances which have been stated above, the respondent was guilty of conduct which would be reasonably regarded as disgraceful and dishonourable by his professional brethren of good repute and competency.

At the time of his declaration of love for Mrs. Rooney, the respondent was about 48 years of age and Mrs. Rooney was about 26 years of age. The respondent had known Mrs. Rooney from her childhood days and must, at all material times, have been well aware of her age.

The respondent continued to be the open and declared lover of Mrs. Rooney at all times from the month of July or August, 1944, and this relationship culminated in an act of adultery on the 3rd July, 1945. I can see no palliation of the respondent's conduct in the fact that, when Rooney became aware of the relationship between his wife and the respondent in February, 1945, he then put an end, so far as was in his power, to the respondent's status of family doctor to Rooney's wife and children. In my opinion, that circumstance does not make the respondent's subsequent adultery more excusable. The respondent's adultery with Mrs. Rooney was merely the obvious sequel of the unlawful passion already established between the respondent and Mrs. Rooney at a time when the respondent was the family doctor of the Rooney family. The action of an injured husband, when he discovers that the medical attendant of his wife and family has become his wife's declared lover, in determining so far as he can, the professional relation of the doctor to his family, does not, in my opinion, lessen the obligation of the doctor to refrain from pursuing his relation with the wife so far as to commit adultery with her.

When the respondent attended Mrs. Rooney on her confinement in February, 1943, he must have been not less than 46 years of age. Mrs. Rooney was then aged 24 or 25. In July or August, 1944, when Mrs. Rooney disclosed her love to the respondent, he immediately reciprocated with a declaration of love for her. Rooney was then absent on military service and his wife was pregnant. Thereafter the relationship of lovers between the respondent and Mrs. Rooney was uninterrupted.

I find that the matters relied on by the prosecutor in the charge have been proved in all material respects.

There is an error in the charge in the statement of the ages of Mrs. Rooney and the respondent respectively in February, 1943. As I have already stated, Mrs. Rooney was 24 or 25 years of age and the respondent at least 47 years of age and therefore not less than 22 years older than Mrs. Rooney. This error is obviously immaterial in substance.

I therefore find that the said Doctor Alexander William Brennan Stark has been guilty of misconduct in a professional respect and I order that his name be erased from the Register of Medical Practitioners, Queensland.

Dated the ninth day of May, 1946.

(Sgd.) NEAL MACROSSAN, C.J.,
The Judge Constituting the Medical Assessment Tribunal.

The name of Alexander William Brennan Stark has accordingly been erased from the Register of Medical Practitioners, Queensland.

THE undermentioned have been registered, pursuant to the provisions of *The Medical Acts*, 1939 to 1940, of Queensland, as duly qualified medical practitioners:

Smyth, Francis George, M.B., B.S., 1945 (Univ. Sydney), General Hospital, Cairns.

Hickey, Glen Vincent, M.B., B.S., 1944 (Univ. Melbourne), 132, Margaret Street, Toowoomba.

NEW SOUTH WALES.

THE undermentioned have been registered, pursuant to the provisions of the *Medical Practitioners Act*, 1938-1939, of New South Wales, as duly qualified medical practitioners:

Croll, Darcy Graham, M.B., B.S., 1936 (Univ. Sydney), 179, Military Road, Neutral Bay.

Hamlin, Reginald Henry James, M.B., Ch.B., 1941 (Univ. New Zealand), Women's Hospital, Crown Street, Sydney.

Langley, Eric Francis, M.B., B.S., 1933 (Univ. Melbourne), 135, Macquarie Street, Sydney.

Masel, Harry, M.B., B.S., 1925 (Univ. Melbourne), Hotel Metropole, Sydney.

Müller, Edmond, M.B., B.S., 1940 (Univ. Queensland), 2A, Wellington Street, Woollahra, Sydney.

Parton, Arthur Leigh, M.B., B.S., 1944 (Univ. Adelaide), Bureau of Medical Inspection, Broken Hill, New South Wales.

Pook, William, M.B., B.S., 1922 (Univ. Melbourne), Molesworth Street, Lismore.

Williams, Ina Marie, M.B., B.S., 1943 (Univ. Melbourne), 15, Onslow Avenue, Elizabeth Bay.

The Royal Australasian College of Physicians.

ANNUAL MEETING.

THE eighth annual meeting of the Royal Australasian College of Physicians was held at Sydney on Thursday and Friday, May 2 and 3, 1946. At its meeting the office-bearers for the period 1946-1948 were inducted, and the Council of the College is now constituted as follows: President, Dr. S. A. Smith (New South Wales); Vice-Presidents, Dr. S. O. Cowen (Victoria), Dr. J. A. D. Ivarach (New Zealand) and Dr. L. S. Latham (Victoria); Censor-in-Chief, Dr. A. Holmes à Court (New South Wales); Honorary Secretary, Dr. C. G. McDonald (New South Wales); Honorary Treasurer, Dr. A. H. Tebbutt (New South Wales); Councillors, Sir Charles Bickerton Blackburn (New South Wales), Sir Trent Ch. de Crespigny (South Australia), Dr. O. A. A. Diethelm (New South Wales), Dr. J. G. Hayden (Victoria),

Dr. E. Britten Jones (South Australia), Dr. Alex P. Murphy (Queensland), Dr. W. S. Newton (Victoria), Dr. Harold J. Ritchie (New South Wales), Sir Sidney Sewell (Victoria), Dr. Alan S. Walker (New South Wales), Dr. A. E. Rowden White (Victoria) and Dr. Ian Wood (Victoria).

By unanimous vote of the general body of Fellows Colonel Edward Ford, Australian Army Medical Corps, and Colonel E. V. Keogh were elected Fellows of the College under Article 40 of the Articles of Association, which provides for nomination by the Council for election as Fellows of such persons as have in the opinion of the Council sufficiently distinguished themselves in any branch of medical science or internal medicine.

The following candidates who were successful at examinations for membership of the College held in New Zealand in February, 1946, and in Melbourne and Sydney in April and May, 1946, were admitted to membership at a meeting of the Council of the College held on May 2, 1946: Dr. M. H. Aiken, Dr. Alice M. Bush and Dr. J. M. Wogan, of New Zealand; Dr. Innes Brodziak, Dr. R. I. Eakin, Dr. K. T. Hughes, Dr. M. R. Joseph and Dr. F. Hales Wilson, of New South Wales; Dr. J. M. Agar, Dr. David Alexander, Dr. W. McI. Rose and Dr. R. F. A. Strang, of Victoria; Dr. T. A. Parry, of Queensland; Dr. R. C. Angove, Dr. M. W. Fletcher and Dr. L. C. Lum, of South Australia.

Post-Graduate Work.

MELBOURNE PERMANENT POST-GRADUATE COMMITTEE'S PROGRAMME FOR JULY.

THE Melbourne Permanent Post-Graduate Committee has arranged the following programme for July, 1946:

Women's Hospital Course.

The second special gynæcology and obstetrics refresher course for resident supernumeraries will be conducted at the Women's Hospital during the four weeks from July 1.

Continuous Refresher Course.

Medical and surgical classes for service and ex-service medical officers will be held at the three general and the children's hospitals throughout the month.

Course Suitable for Candidates for the M.D. Part II and M.R.C.P. Examinations.

Clinical lecture-demonstrations suitable for candidates for M.D. Part II and M.R.A.C.P. examinations will be continued:

July 2, by Dr. I. Maxwell on "Recent Advances in Chemotherapy".
July 9, by Dr. L. B. Cox on "Sciatica".
July 16, by Dr. J. Horan on "Splenomegaly".
July 23, by Dr. L. E. Hurley on "Acute Medical Emergencies".

University Classes.

University classes for Part I of the higher degrees and diplomas will be continued.

Course at Geelong.

The fourth demonstration of the course at the Geelong Hospital will be given at 8.30 o'clock p.m. on Wednesday, July 17, on "Common Obstetrical Problems" by Dr. Arthur Wilson. Those wishing to attend should communicate with Dr. Alan Kidd, 216, High Street, Belmont, Geelong.

Enrolment for Courses.

Enrolments for courses in Melbourne should be made two weeks before commencement with the Secretary, Post-Graduate Committee, College of Surgeons, Spring Street, C.1. Telephone: JM 1547-8.

COURSE IN GYNÆCOLOGY AND OBSTETRICS AT SYDNEY.

THE New South Wales Post-Graduate Committee in Medicine announces that in conjunction with the honorary medical staff of the Royal Prince Alfred Hospital it will hold a course in gynæcology and obstetrics at the King George V Memorial Hospital for Mothers and Babies, Camperdown, from June 10 to 21, 1946.

The fee for the course will be £5 5s. Registration for the course will be limited to twenty-four persons. Applications for registration, accompanied by a remittance for the amount of the fee, should be made to the Secretary, Post-Graduate Committee in Medicine in the University of Sydney, 131, Macquarie Street, Sydney.

Candidates will be divided into two groups, A and B. Group A will attend gynæcology the first week and then obstetrics the second week, whilst Group B attend obstetrics in the first week and gynæcology in the second.

Owing to the two public holidays on Monday, June 10, and Monday, June 17, evening sessions have been arranged on each Tuesday and Thursday evening at 7 o'clock p.m., at which both groups will attend.

The programme is as follows:

Gynæcology.

Tuesday, June 11.

9.30 a.m.—"Inaugural Address": Dr. J. H. L. Cumpston.
11 a.m.—Operative demonstration: Dr. H. H. Schlink.
2 p.m.—"Carcinoma of the Cervix Uteri": Dr. H. H. Schlink.
3.30 p.m.—Operative demonstration: Dr. F. A. Maguire.

Wednesday, June 12.

9.30 a.m.—"The Surgery of Prolapse": Dr. H. H. Schlink.
11 a.m.—Operative demonstration: Dr. H. H. Schlink.
2 p.m.—"Anæsthesia in Gynæcology and Obstetrics": Dr. W. I. T. Hotten.
3.30 p.m.—"The Diagnosis and Treatment of Leucorrhœa": Dr. W. Cunningham.

Thursday, June 13.

9.30 a.m.—"Cystocele and Urethrocele: Plastic Operations on the Vaginal Wall": Dr. F. A. Maguire.
11 a.m.—Operative demonstration: Dr. F. A. Maguire.
2 p.m.—"Chronic Pelvic Inflammation": Dr. C. Chapman.
3.30 p.m.—"Diagnostic Aspects of Fibromyomata and Ovarian Tumours": Dr. M. Stening.

Friday, June 14.

9.30 a.m.—"Sterility": Dr. F. N. Chenhall.
11 a.m.—"The Menopause": Dr. M. B. Fraser.
2 p.m.—Operative demonstration: Dr. C. Chapman.
3.30 p.m.—"Disorders of Menstruation: Amenorrhœa and Menorrhagia": Dr. M. B. McIlrath.

Evening Sessions.

Tuesday, June 18.

7 p.m.—"Outline of the Anatomy and Physiology of the Female Pelvis": Dr. F. A. Maguire.
8 p.m.—"Gynæcological Pathology": Dr. Mary Heseltine.

Thursday, June 20.

7 p.m.—"Chorionepithelioma": Dr. C. Chapman.
8 p.m.—"Ectopic Pregnancy": Dr. G. Stening.

Obstetrics.

Tuesday, June 18.

9.30 a.m.—"Misplacements in Relation to Sterility, Pregnancy and Labour": Dr. H. A. Ridler.
11 a.m.—"Cæsarean Section: Some Methods; Indications and After-Results": Dr. H. A. Ridler.
12 noon: "Malformations of the Uterus and their Effects on Pregnancy and Labour": Dr. Muriel McIlrath.
2 p.m.: "Breech Presentation": Professor Bruce Mayes.
3.30 p.m.—"Justo Minor Pelvis": Dr. M. B. Fraser. "Accidental Hæmorrhage": Dr. M. L. Stening.

Wednesday, June 19.

9.30 a.m.—"The Management of Normal Pregnancy": Dr. J. N. Chesterman.
11 a.m.—"Some Complications of Pregnancy": Dr. J. N. Chesterman.
2 p.m.—"Chronic Nephritis and Hypertension in Relation to Pregnancy": Dr. R. F. Back.
3.30 p.m.—"Infection in the Newborn": Dr. Mary Heseltine.

Thursday, June 20.

9.30 a.m.—"Aschheim-Zondek Reaction and its Clinical Application": Professor Bruce Mayes.
11 a.m.—"Clinical Rounds": Dr. H. B. Williams.
2 p.m.—"Post-Partum Hæmorrhage": Professor Bruce Mayes.
3.30 p.m.—"Toxæmia of Pregnancy": Dr. H. B. Williams.

Friday, June 21.

9.30 a.m.—"Difficulties Encountered in Breast Feeding": Dr. Kathleen Winning.

XUM

11 a.m.—"The Treatment of Breast Complications in Pregnancy and the Puerperium": Dr. W. Cunningham. "The Treatment of Diabetes in Pregnancy": Dr. Margaret Mulvey.
2 p.m.—"Maternal Mortality": Dr. Mary Heseltine.
3.30 p.m.—"Surgical Complications of Pregnancy": Dr. G. L. Stening. "Habitual Abortion": Dr. F. N. Chenhall.

Evening Sessions.

Tuesday, June 11.

7 p.m.—"The Management of the Normal and Abnormal Newborn Full-Time Child". Dr. Kathleen Winning.
8 p.m.—"Radiology in Obstetrics": Dr. D. G. Maitland.

Thursday, June 13.

7 p.m.—Medical complications of pregnancy: "Heart Disease Complicated by Pregnancy", by Dr. John H. Halliday; "Respiratory Infections in Pregnancy, Non-Tuberculous", by Dr. H. Maynard Rennie.
8.30 p.m.—"The Hæmolytic Disease of the Newborn": Dr. N. Cunningham.

Correspondence.

PROFESSOR RALPH STOCKMAN.

SIR: Professor Ralph Stockman, who died recently in Edinburgh, held the chair of pharmacology at Glasgow for nearly forty years. Though eminent for his labours in his proper sphere, he achieved greater distinction in the field of medicine by reason of his interest in the chronic rheumatic diseases. What at first was merely a hobby—a by-product of his specialty—increased in its scope until it achieved universal recognition as a great contribution to medical science. A salutary lesson is conveyed by the reflection that a professor of *materia medica*—a specialist in drugs—was the pioneer in the scientific investigation of chronic rheumatism, for centuries the special field of the drug purveyor. While the practitioners of medicine continued to administer shotgun prescriptions and to hope that their patients would get no worse, the pharmacologist was making a host of careful clinical and pathological observations. After the appearance of Stockman's first important paper in 1904, he was proclaimed an authority on chronic rheumatism, a position which he enjoyed unchallenged almost until his death. In recent years P. S. Hench, in the *Rheumatism Reviews*, has deplored the dearth of original work upon fibrositis; the majority of papers, he complains, represent only copy-work based upon Stockman's observations.

In 1904, also, Sir William Gowers propounded the concept of inflammation in fibrous tissue which he named fibrositis. From the very start, however, controversy raged around the word; and the battle has continued down to the present day. The extremists on the left deny that there is any such disease, while the rightists proclaim that there is an "entity" called fibrositis. Those who follow the middle path, however, espouse neither the nihilists nor the idolaters; fibrositis, said Gowers, signifies a type of tissue reaction and not anything resembling a specific disease. The term was used in this sense by Stockman, whose comprehensive view of the rheumatic diseases detected in them a basic unity founded upon the reality of the fibrositic lesion.

To one who knew Stockman only in his scientific writings, the news of his death at the age of eighty-five years brings the hope that the lesson of his life will not be lost to medical science. His realization of the value and the limitations of drugs, combined with his zeal for the truth and his passion for discovery, led him away from his specialty; and, instead of experimenting fruitlessly with empirical remedies for the rheumatic disorders, he devoted himself to an inquiry into the real nature of these disturbances.

Yours, etc.,

Anatomy Department, MICHAEL KELLY.
University of Melbourne,
April 27, 1946.

POLIOMYELITIS: A QUESTION OF DIAGNOSIS.

SIR: During the last three or four weeks in general practice, I have seen not a few—in fact if my memory serves me correctly six to nine—cases in which the patient complained of giddiness and vomiting, and on examination the only abnormal sign was nystagmus.

These, of course, are the symptoms of the labyrinthine disturbances or Ménière's syndrome, and for a while I considered that as they were occurring in the elderly type of patient with a somewhat high blood pressure (in the region of 180/100), the cause was probably vascular in origin.

However, I then saw an elderly woman whose blood pressure was 180/100, but who stated that she had had some gastro-intestinal upset the previous week which had cleared up. Also a young mother, aged twenty-nine, complained of the same symptoms, but no history of gastro-intestinal upset could be elicited and no high blood pressure was found.

After seeing this number of nearly identical cases, I thought that the cause probably was not vascular and must be due to some infective process.

In view of the epidemic of acute anterior poliomyelitis and also in view of the fact that so far as I know these patients recovered from their symptoms within about ten days, I feel that it may be possible to class these cases as a poliomyelitis of the vestibular division of the eighth nerve because we do know that the cranial nerves are very susceptible to virus infections.

I would like to state that I have no records of the cases, so cannot be definite in the exact number I have seen, but it is certainly in the region of six to nine all told.

In conclusion I feel that it would be very interesting to know if any other practitioners have had the same experience, and if so, would place them on record.

Yours, etc.,

Arncliffe, DAVID A. BROWN.
New South Wales,
May 21, 1946.

THE FUTURE OF MEDICAL PRACTICE.

SIR: In the near future the profession is faced with the probability of the introduction of a partial salaried medical service into Great Britain, whilst in Australia, if the referendum is carried, a similar probability will occur. If the referendum is not carried it is still within the powers of the States to introduce individual salaried services.

It would appear that the Council of the Parent Body and the Federal Council of the Australian Branches are not only preparing to oppose the introduction of such a service, but will also, in the event of its actual introduction, take certain other steps "in the public interest". The Federal Council has the right to do this by virtue of paragraph 3, section 7, of its Memorandum of Association.

The British Medical Association purports to represent its members, and one of its specific objects is clearly expressed in paragraph 3, section 2, "to form a bond of union among the members . . ." The result of a *questionnaire* recently held by the Home Association showed that a majority, though by no means a considerable one, were against a salaried service. In this country neither the Federal Council nor any State Branch councils has made an attempt to hold such an inquiry, but from information gained through discussion with members in this State the opinions of such may be classified into three:

1. Those who are opposed to the introduction of any type of salaried service. Briefly, their main reasons are: "it is not in the best interests of the public", "it will be a bureaucratic service with its inherent faults", "it will destroy initiative and ambition".

2. Those who just as firmly believe that a salaried service is the only type of service that can give effect to the health principle of the British Medical Association, "a service which should render available to every individual medical service both general practitioner and specialist, domiciliary and institutional". This principle meets with the approval of everyone.

3. Members of the profession who are somewhat undecided, being attracted by the probable conditions of service, such as definite working hours and vacations and superannuation, but being deterred by the objections put forward by Class 1. Doubtless, if the conditions of service were sufficiently attractive and the future of private practice doubtful, economic necessity would overrule their objections.

In the event of any government introducing a salaried service with sufficiently attractive conditions, Class 2 will accept service and probably Class 3.

The British Medical Association purports to be a body representing legally qualified medical practitioners; at present its members include general practitioners, specialists, members of some salaried service and some who have accepted a part-time salaried position.

It represents these successfully, and harmonious relations exist between them all. If it persists in what appears to be its present policy, of attempting actively to oppose any government statutes which have as their purpose the introduction of a salaried service, it will more than likely create disharmony and disunity amongst its members. If this disunity occurs, it will be almost directly responsible for flouting one of its own Memoranda of Association.

In the question at issue, members of the British Medical Association hold different beliefs; they are sincere in these beliefs and are entitled to them, and they, in the great majority of cases, respect each other's opinions. Cannot the association be sufficiently wise and show foresight by advising itself of its members' opinions rather than risking a possibility of disruption? Would it not be a statesmanlike move to allow a free discussion of the subject in all its branches by sponsoring talks by prominent protagonists of the types of services under discussion? By permitting members to make their own choice of service, neither directly nor indirectly influencing them in their choice? If it adopted this line of action, the members would still have a single representative body looking after their several interests.

In the near future, economic necessity may force some members to accept positions in a salaried service. Might it be suggested that it is infinitely wiser for the association to formulate conditions of service for its members prior to the introduction of a salaried service if it discovers that a definite percentage will accept service. Better this than forced conditions of service.

Can it not be a representative body?

Yours, etc.,

C. H. JAEDE.

Mascot,
New South Wales,
May 18, 1946.

Obituary.

EUGENE PÓLYA.

WE are indebted to Dr. H. C. Rutherford Darling for the following appreciation of the late Eugene Pólya.

The death of Eugene (Jenö) Pólya, of Budapest, at the age of sixty-eight years, removes a great pioneer in gastro-enterology and a colourful figure from the realms of surgery. His career was so closely bound up with surgery that one is apt to forget that in the early years of the present century his researches into the physiology of the pancreas came very near to the discovery of insulin.

He was born on April 30, 1876, at Budapest. His father was a well-recognized authority on economics, a member of the Royal Hungarian Academy, who died prematurely, leaving the eldest son the burden of providing for his widowed mother, two sisters and two younger brothers. By means of scholarships, coaching classes and working as a demonstrator he not only successfully accomplished this mission, but also graduated with high distinction.

From his early days Pólya emphasized the importance of correlating physiology with clinical experience. In 1903 he became attached to St. Stephan's Hospital, which institution he continued to serve until his retirement in 1940. As a surgeon and clinical teacher he showed outstanding clinical acumen combined with an appreciation of the sick person as an individual possessed of hopes and fears and as a member of the community having social obligations.

During the violent political upheavals of 1918-1919 he was one of the few surgeons who did not desert their posts, no matter whether radicals, communists, Rumanians or right-wingers ruled Hungary. He thought he was doing his duty towards the public, but this attitude led to his being persecuted. It took Pólya about two years to clear himself of the charge of "radicalism" and be reinstated to his former position as academic teacher and public servant.

Although an inexorable disciplinarian, he achieved great popularity amongst his students. Perhaps somewhat afraid of his wit, which at times was keen, they always came to realize that in "E.P." they had someone who, realizing their weaknesses, was zealous in their defence and for their welfare.

Throughout his occupancy of the chair of surgery at the Peter Pázmány University he took an active part in the communal life of the university and was admitted as *Privatdozent* in the University of Budapest.

During the whole of his career he was actively engaged in scientific investigation, and his published works include numerous papers on the physiology and surgery of the biliary system, gastric surgery, carcinoma, plastic surgery *et cetera* to be found in the Hungarian, German and Anglo-American medical journals.

In October, 1939, he was invited to address the Clinical Congress of the American College of Surgeons at Philadelphia on the "Reestablishment of the Gastro-Intestinal Passage after Gastric Resection", had the honorary Fellowship of the American College of Surgeons conferred on him, and was reluctantly compelled to decline the post of professor of experimental surgery at one of the leading universities in the United States.

During the siege of Budapest by the Russian army he was separated from his friends and family and went into hiding with a false passport. On December 7, 1944, his identity was discovered by the Hungarian Nazis. He was confined to a concentration camp and his demise occurred very shortly afterwards. His body has not been recovered.

He is survived by a widow and a young daughter in Hungary, a married daughter in America, and two sons in Australia.

To his wife, who was his constant companion and counsellor, and who endeared herself to all who knew her by her wisdom, wit and charm, will go a wave of sincere sympathy from the medical profession throughout the world.

JOSEPH THOM TENNANT.

DR. JOSEPH THOM TENNANT, whose death was announced recently in these columns, was born at Coalbridge, Scotland, and studied medicine at the University of Glasgow, graduating as Bachelor of Medicine and Master of Surgery in 1882. He practised in Scotland for several years, and after acting as ship's surgeon for about ten years he came to settle in Australia. At first he practised at Forbes and Hornsby, New South Wales, and then moved to Kurri Kurri. Here he remained for over twenty-two years; he was a member of the British Medical Association and maintained its ethical standards on the coalfields. His practice became extensive and he worked hard for the good of his patients. He was government medical officer of the district for many years and took an active share in the corporate life of the district. He was an elder of the Presbyterian Church and has been described as a pillar of the Highland Society. For many years he was lecturer and examiner for St. John Ambulance. In recognition of these services he was in 1938 admitted as Serving Brother in the Order of the Hospital of St. John of Jerusalem. Later in the same year he was created an Officer of that order. He retired from practice some years ago and lived in Killara until his death.

CEDRIC VICTOR BOWKER.

WE regret to announce the death of Dr. Cedric Victor Bowker, which occurred on May 27, 1946, at Bellevue Hill, New South Wales.

Congresses.

THE AUSTRALIAN AND NEW ZEALAND ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

THE twenty-fifth meeting of the Australian and New Zealand Association for the Advancement of Science will be held at Adelaide during the week August 21 to 28, 1946. The section which will be of most interest to medical practitioners is Section I, Medical Science and National Health. Dr. John M. Dwyer, of 11, Cross Road, Kingswood, Unley, South Australia, is the secretary of this section, and would be glad to hear before July 1 from any medical practitioners who propose to read papers.

Full particulars about the meeting can be obtained from the local secretaries in each State—*New South Wales*, Dr. A. B. Walkom, Science House, 157, Gloucester Street, Sydney; *Victoria*, Mr. E. R. Pitt, 425, St. Kilda Road, Melbourne; *South Australia*, Dr. R. S. Burdon, University of Adelaide, Adelaide; *Western Australia*, Professor A. D. Ross, University of Western Australia, Perth; *Queensland*, Dr. D. A. Herbert, University of Queensland, Brisbane; *Federal Capital Territory*, Dr. C. Barnard, Box 109, Canberra; *Tasmania*, Dr. H. D. Gordon, University of Tasmania, Hobart.

XUM

Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Selby, George, provisional registration, 1946 (Univ. Sydney), 36, Dudley Road, Rose Bay.

Giblin, William Eric, junior, M.B., 1945 (Univ. Sydney), Wahroonga Avenue, Wahroonga.

Davidson, Roger Madgwick, provisional registration, 1946 (Univ. Sydney), Marrickville District Hospital, Marrickville.

Nowland, Reginald John, M.B., B.S., 1945 (Univ. Sydney), 428, Darling Street, Balmain.

Holland, Edward Henry, provisional registration, 1946 (Univ. Sydney), 98, Remly Street, Lakemba.

Herlihy, William Francis, M.B., B.S., 1945 (Univ. Sydney), 138, Victoria Street, Ashfield.

THE undermentioned have applied for election as members of the Tasmanian Branch of the British Medical Association:

Moloney, William Rex, M.B., B.S., 1939 (Univ. Melbourne), 16, Cameron Street, Launceston.

Shoobridge, Michael Philip Kendal, M.B., B.S., 1945 (Univ. Melbourne), General Hospital, Launceston.

THE FEDERAL MEDICAL WAR RELIEF FUND.

THE following contributions to the Federal Medical War Relief Fund have been received:

Victoria.

A. M. Wilson, £100.

Colin Friend, £52 10s.

H. Hume Turnbull, J. V. Guest, Eric Gutteridge, £50.

Margaret Winter Ashton, R. F. May and L. T. Wedlick (joint contribution), £30.

Robert Fowler, £26 5s.

Sir Sidney Sewell, Robert E. Short, £25.

Ella A. MacKnight, Raymond W. Griffiths, T. G. Miller, Leonard W. Nott, Anonymous, £21.

W. E. Wilson, A. H. Green and E. H. Green (joint contribution), R. L. Forsyth, £20.

Kate MacKay, £15 15s.

Hugh C. Trumble, £15.

N. M. Harry (first instalment), £12 12s.

Alan Murray, G. Graham Watters, Morris C. Davis, Brenda B. Scott, Colin Macdonald, Newall Laidlaw, W. J. Denehy, F. T. Wheatland, F. J. Niall, M. R. Healy, H. Cecil Colville, Agnes and Roberta Donaldson (joint contribution), R. B. Loosli, J. Leon Jona, W. D. Saltau, Francis Spring, J. A. Larwill, B. R. Hallows, T. J. F. Frank, Elizabeth McComas, A. E. Langley, D. M. Seeley, Ronald M. Rome, E. E. Price, Eileen M. Higgins, N. J. Parker, Jacob Jona, £10 10s.

G. H. van Nooten, Clifford L. Rosefield, A. J. Kerr, Cyril J. Tonkin, T. Fowell Buxton, H. Goldman, L. Scott Latham, R. S. Smibert, C. J. O. Brown, L. A. Ivan Maxwell, Leslie E. Hurley, D. W. Neville, £10.

Mostyn L. Powell, Daniel Wise, J. Ringland Anderson, B. I. Taft, N. Wilson, D. McGowan Steele, W. R. Tonkin, G. C. Scantlebury and H. Watson (joint contribution), D. F. O'Brien, A. C. Kennedy, C. H. Maling, R. Douglas Aitchison, B. Hutton Jones, William R. S. Gray, £5 5s.

Barbara G. Wood, Francis E. Browne, Effie Stillwell, M. J. Costelloe, Mildred Hutchings, Anonymous, £5.

S. S. Marshall (first instalment), Ivo Beattie, J. F. Meehan, E. J. Claridge, J. Eric Clarke, C. McD. Forster, £3 3s.

John M. Gooch, £3.

R. B. Gilchrist, Christina H. Reid, J. B. McMiken, V. G. Bristow, Amanda Liebert, Thomas H. Steel, John P. Catchlove, J. Morlet, Margaret A. MacKie, £2 2s.

L. Winthrope, Robert M. Shaw, A. N. McArthur, £1 1s.

G. Keys Smith, 10s. 6d.

Total: £1,198 11s. 6d.

Grand total: £11,780 3s. 5d.

Books Received.

"A Course in Practical Biochemistry for Students of Medicine", by A. T. Cameron, M.A., D.Sc., (Edinburgh), F.R.I.C., F.R.C.S., and Frank D. White, A.R.T.C., Ph.D. (Edinburgh), F.R.I.C.; Fifth Edition; 1946. London: J. and A. Churchill, Limited. 8" x 5½", pp. 226, with many illustrations. Price: 12s. 6d.

"Group Psychotherapy: Theory and Practice", by J. W. Klapman, M.D.; 1946. New York: Grune and Stratton. 9" x 6", pp. 352. Price $4.00.

Diary for the Month.

JUNE 11.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
JUNE 11.—Tasmanian Branch, B.M.A.: Ordinary Meeting.
JUNE 13.—South Australian Branch, B.M.A.: Council Meeting.
JUNE 14.—Queensland Branch, B.M.A.: Council Meeting.
JUNE 18.—New South Wales Branch, B.M.A.: Medical Politics Committee.
JUNE 19.—Western Australian Branch, B.M.A.: General Meeting.
JUNE 20.—New South Wales Branch, B.M.A.: Clinical Meeting.
JUNE 20.—Victorian Branch, B.M.A.: Executive Meeting.
JUNE 25.—New South Wales Branch, B.M.A.: Ethics Committee.
JUNE 26.—Victorian Branch, B.M.A.: Council Meeting.
JUNE 27.—South Australian Branch, B.M.A.: Scientific Meeting.
JUNE 27.—South Australian Branch, B.M.A.: Council Meeting.
JUNE 27.—New South Wales Branch, B.M.A.: Branch Meeting.
JUNE 28.—Queensland Branch, B.M.A.: Council Meeting.
JULY 2.—New South Wales Branch, B.M.A.: Council Quarterly.
JULY 3.—Victorian Branch, B.M.A.: Branch.
JULY 3.—Western Australian Branch, B.M.A.: Council Meeting.
JULY 5.—Queensland Branch, B.M.A.: Branch Meeting.
JULY 9.—Tasmanian Branch, B.M.A.: Ordinary Meeting.
JULY 9.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
JULY 9.—New South Wales Branch, B.M.A.: Organization and Science Committee.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Honorary Secretary, 135, Macquarie Street, Sydney): Australian Natives' Association; Ashfield and District United Friendly Societies' Dispensary; Balmain United Friendly Societies' Dispensary; Leichhardt and Petersham United Friendly Societies' Dispensary; Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney; North Sydney Friendly Societies' Dispensary Limited; People's Prudential Assurance Company Limited; Phœnix Mutual Provident Society.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federated Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178, North Terrace, Adelaide): All Lodge appointments in South Australia; all Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205, Saint George's Terrace, Perth): Wiluna Hospital; all Contract Practice appointments in Western Australia. All government appointments with the exception of those of the Department of Public Health.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2).

Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this journal. The management cannot accept any responsibility or recognize any claim arising out of non-receipt of journals unless such a notification is received within one month.

SUBSCRIPTION RATES—Medical students and others not receiving THE MEDICAL JOURNAL OF AUSTRALIA in virtue of membership of the Branches of the British Medical Association in the Commonwealth can become subscribers to the journal by applying to the Manager or through the usual agents and booksellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rates are £2 for Australia and £2 5s. abroad *per annum* payable in advance.